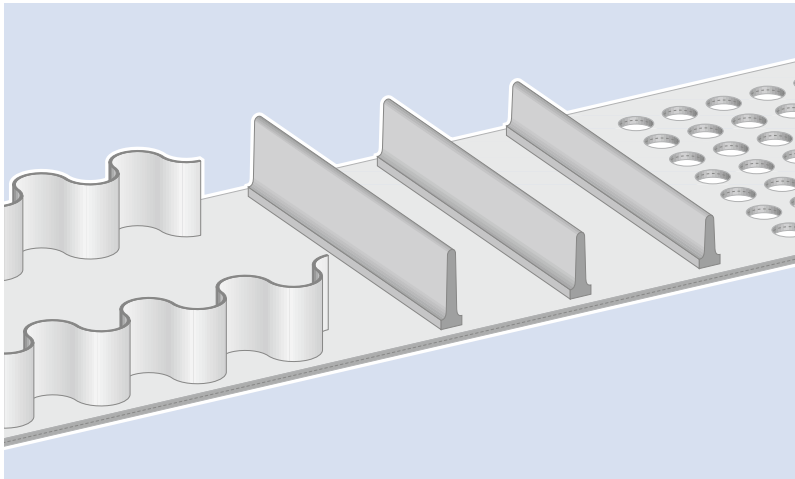


**siegling transilon**  
conveyor and processing belts

# TECHNICAL INFORMATION 2

## SPECIAL FEATURES AND PROPERTIES



### Contents

- 2 Introduction
- 3 Profiles and sidewalls
- 10 Tongue-mounted and flex-action cleats
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# INTRODUCTION

Siegling Transilon conveyor and processing belts are high-quality products characterized by their durability, simple handling, freedom from maintenance and economical operation.

Certain conveying and processing tasks require mechanical, physical or chemical belt properties which are made possible only by special production processes, combination of materials or finishing.

For example,

- profiles, sidewalls and surface patterns improve the grip properties,
- special tension member designs allow usage as knife edge or curved belt,
- NA, HC and SE belts fulfil special requirements in applications.

Important basic information about storage, finishing and fitting of your Siegling Transilon conveyor and processing belt can be found in our brochure ref. no. 317 Technical Information 1.



Our web-based Transilon product finder app allows users to find the right conveyor/processing belt for their application quickly and easily. Users can make the results list more accurate by entering the specifications they are looking for, such as the belt thickness, return diameters and profiles. Even if just a few search terms are added, the app swiftly generates a list of product names and technical information. The app can also retrieve product data sheets and brochures with technical information.



The Siegling Transilon product finder  
is available at [www.forbo.com/movement](http://www.forbo.com/movement) >  
E-Tools > Product Finder

Because our products are used in so many applications and because of the individual factors involved, our operating instructions, details and information on the suitability and use of the products are only general guidelines and do not absolve the customer from carrying out checks and tests themselves. When we provide technical support on the application, the customer bears the risk of the machinery functioning properly.

# PROFILES AND SIDEWALLS



Conveyor belts equipped with profiles are used for inclined conveying of bulk goods and small items.

Profiles are available in various shapes and sizes, and in some cases can be supplied as roll material.

Sidewall profiles are used – often in conjunction with lateral profiles – to contain bulk goods on the sides of the belt.

## Combinations of materials

Top face/ underside coating	Profile material	Profiles welded without adhesive	Profiles welded with adhesive	Side wall welded with IR	Side wall welded with HF
V	V	from 0.3 mm	from 0.3 mm	from 0.4 mm	from 0.4 mm
	U	–	from 0.3 mm	–	–
V...H	V	from 0.2 mm	from 0.2 mm	from 0.4 mm	from 0.4 mm
	U	–	from 0.2 mm	–	–
U	V	–	from 0.2 mm	–	–
	U	from 0.2 mm	from 0.2 mm	from 0.3 mm	from 0.2 mm
Q, U0, E0, V1, U1	all	–	yes	–	–
TX0, Y0, S0, UH	all	–	–	–	–
G, P, S, U...H	all	–	–	–	–
E	E	from 0.3 mm	from 0.3 mm	from 0.3 mm	from 0.3 mm
	V	–	–	–	–
	U	–	–	–	–
NOVO	V	–	yes	–	–
	U	–	–	–	–

Coatings	
<b>O</b>	Fabric uncoated
<b>E</b>	Polyester
<b>G</b>	Rubber/elastomer
<b>P</b>	Polyamide
<b>S</b>	Silicone
<b>TX0</b>	Texglide™
<b>U</b>	Polyurethane
<b>U1</b>	0.1 mm thick urethane coating
<b>U...H</b>	Polyurethane hard
<b>V</b>	Polyvinyl chloride
<b>V1</b>	0.1 mm thick PVC coating
<b>V...H</b>	Polyvinyl chloride hard
<b>U0, E0, A0, S0, Y0, UH</b>	Impregnations
<b>NOVO (N)</b>	Polyester felt

Forbo Siegling accepts no responsibility for any errors or omissions. Ask your contact in our company for details.

# PROFILES AND SIDEWALLS

## Splice

For Siegling Transilon belts with profiles and sidewalls, the splice types listed in the Technical Information 1 brochure (ref. no. 317) can be used, depending on the belt type.

In swan-neck conveyor belts, because of stiffness around the splice, a stepped Z-splice or overlap splice must be used.

## Positioning of profiles

Lateral profiles are usually positioned at a right angle to the belt edge. For other profile arrangements (e.g. V-shaped or curved) please note the options shown on the right and special dimensions.

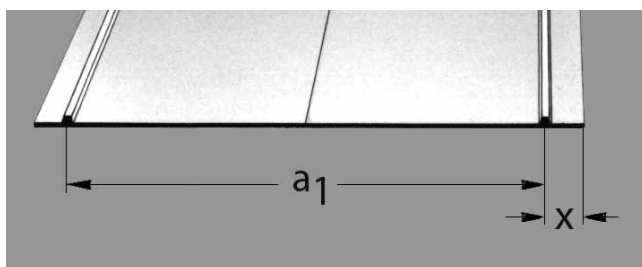
With longitudinal profiles the distance from the belt edge to the middle of the profile (x) must be stated. Longitudinal profiles can be flush with the belt edge.

Exception: Profiles on U0 surfaces require a gap from the belt edge of at least 2 mm.

When longitudinal profiles are attached in pairs the distance between the profile centers ( $a_1$ ) must also be specified. Please note that the width of the belt material might shrink due to pretensioning (about 30% of the elongation at fitting lengthways – see brochure no. 256).

No longitudinal profiles can be applied around a longitudinal seam, the distance  $a_1$  must be at least 400 mm. If a longitudinal profile must be located in the center of the belt, then the longitudinal seam must be offset by approx. 200 mm to either side of the center.

If profiles on both sides or longitudinal and lateral profiles combined are needed, please inquire.

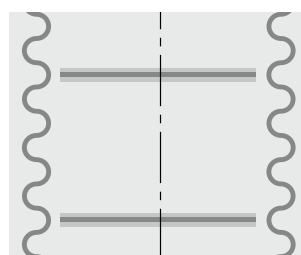


## Profile positions

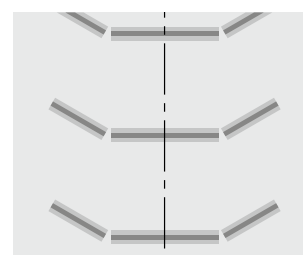
Profile details for v-shaped welded profiles (see fig.)

Angle $\beta$	Belt length* min. [mm]	Belt width max. [mm]
45°	5500	1150
40°	5100	1300
35°	4800	1450
30°	4650	1600
25°	4300	1700
20°	3900	1800
15°	3300	1900
8.5°	2600	2000

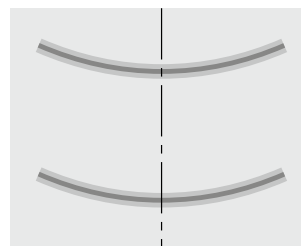
\* Shorter belt lengths available on request.



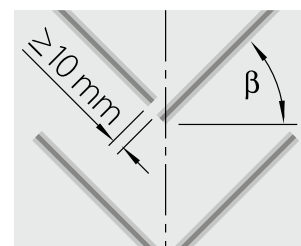
Box-shaped welded profiles



V-shaped welded profiles



Curved welded profiles



V-shaped welded profiles (sketch of dimensions)

## Sizes available

### Belt sizes for lateral profiles

	open belts	endless belts
minimum belt length	any length	600 mm for belt width ≤ 1000 mm 1100 mm for belt width > 1000 mm
maximum belt length	any length	any length
minimum belt width*	50 mm	50 mm
maximum belt width*	approx. 3200 mm	approx. 3200 mm

### Belt sizes for longitudinal profiles on top face

Belt width approx. [mm]	Minimum length endless belts** approx. [mm]
up to 1200	700
up to 4700	1900
> 4700	on request

### Belt sizes for longitudinal profiles on underside

Belt width approx. [mm]	Minimum length approx. [mm]
up to 500	700
up to 700	1250
up to 1000	2000
up to 1750	2700
up to 2500	4000
up to 4450	5500
> 4450	on request

### Tolerances of profile center distances $a_1$

$a_1$ [mm]	Tolerance [mm]
50 up to 500	± 1.5
up to 1000	± 2.0
up to 3000	± 3.0
up to 4000	± 4.0
> 4000	± 5.0

### Belts with profiles on top face and underside

Minimum widths	
for lateral profiles	50 mm
for longitudinal profiles	$a_1$ + profile width

## Types of profiles

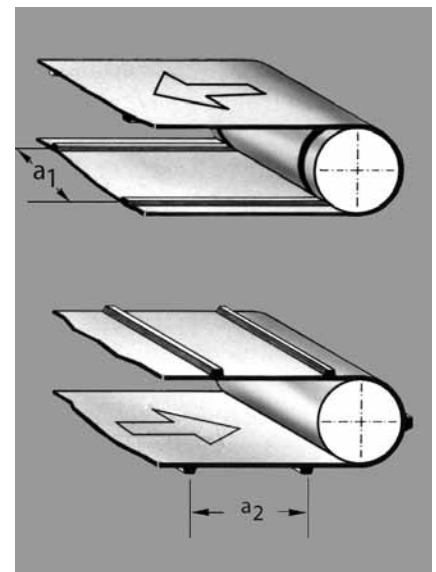
Indented longitudinal profiles are available too. To extend service life we recommend using whole profiles that are not indented, as the indentation can cause splits at the bottom of the profile.

Further special profiles available on request.

Please note:

Profiles can mean that belt properties are changed. This applies particularly to types that

- are ATEX compliant
- have a highly conductive coating (HC)
- are flame-retardant (SE/FR)



### Recommended splice method

#### 1-ply types

with splice film reinforced with gauze

#### 2 + 3-ply types

Z-overlap or overlap splice

Larger belt widths on request.

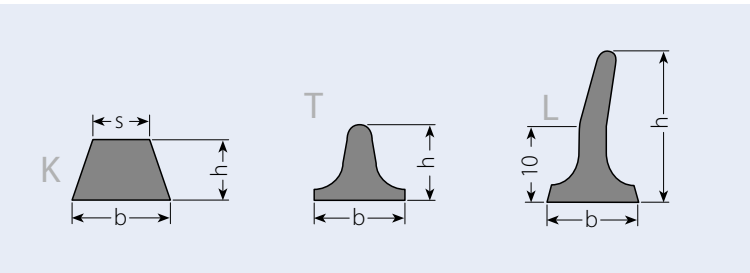
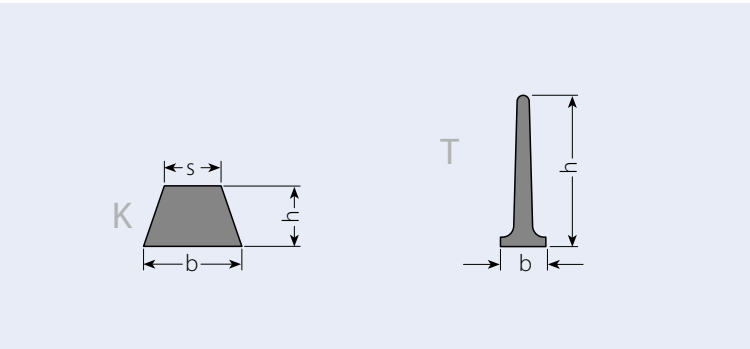
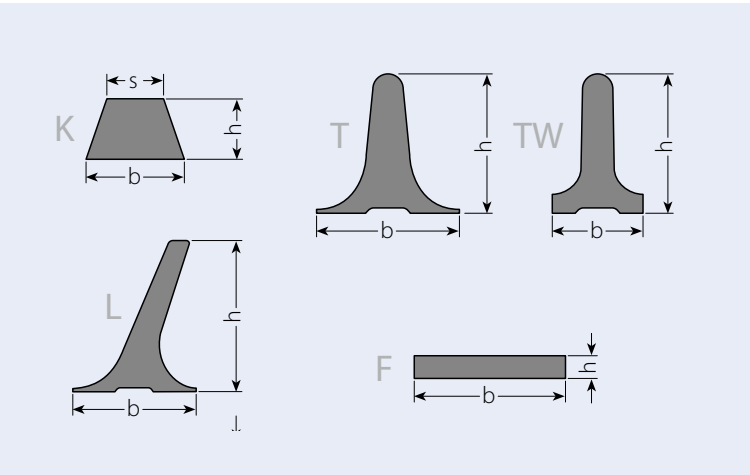
\* Depending on the profile shape and positioning, guidelines do not have to be kept to or may be exceeded – when using larger profiles or where profiles are positioned particularly narrowly, please consult us.

\*\* Please note the manufacturing options depending on the splicing angle – table minimum lengths in brochure ref. no. 317, page 6.

# PROFILES AND SIDEWALLS

## Profile product range

### Shapes



Designation	Sizes b x h x s [mm]	
-------------	-------------------------	--

PVC Profiles		
K 6	6 x 4 x 4	
K 10	10 x 6 x 6	
K 13	13 x 8 x 7.5	
K 15	15 x 8 x 9.5	
K 17	17 x 11 x 9.5	
K 30	30 x 16 x 18	
T 20	20 x 20	
T 60	70 x 60	
TW 40 <sup>1)</sup>	30 x 40	
TW 60 <sup>1)</sup>	30 x 60	
TW 80 <sup>1)</sup>	40 x 80	
L 40	33 x 40	
L 60	33 x 60	
L 80	46 x 80	
F 20 x 3	20 x 3	
F 30 x 8	30 x 8	

Urethane Profiles		
K 6	6 x 4 x 4	
K 10	10 x 6 x 6	
K 13	13 x 8 x 7.5	
K 15	15 x 8 x 9.5	
K 17	17 x 11 x 9.5	
T 20	12 x 20	
T 30	12 x 30	
T 40	12 x 40	
T 50	12 x 50	
T 60	12 x 60	
F 15 x 6	15 x 6	
F 30 x 8	30 x 8	

Polyester Profiles		
K 10	10 x 6 x 6	
K 13	13 x 8 x 7.5	
K 17	17 x 11 x 9.5	
T 10	12 x 10	
LB 20	12 x 20	
LB 30	12 x 30	
LB 40	12 x 40	
LB 50	12 x 50	
LB 60	12 x 60	

	Color and physiological property					Shore-A-Hardness	Weight approx. [g/m]	Permissible operating temperature [°C]	Use as lateral profile		Use as longitudinal profile		
	Blue RAL 5013	Blue RAL 5015	Transparent	White	Green				a <sub>2 min</sub> [mm]	d <sub>min</sub> approx. [mm]*	a <sub>1 min</sub> [mm]	d <sub>min</sub> approx. [mm]* underside	d <sub>min</sub> approx. [mm]* top face
		FDA		FDA	● <sup>2)</sup>	60	25	-10/+70	30	30	30	40	30
		FDA		FDA	● <sup>2)</sup>	60	55	-10/+70	30	50	30	70	60
		FDA		FDA	● <sup>2)</sup>	60	100	-10/+70	30	80	30	90	60
					● <sup>2)</sup>	60	120	-10/+70	30	90	30	90	60
		FDA		FDA	● <sup>2)</sup>	60	170	-10/+70	30	110	30	90	90
					● <sup>2)</sup>	60	470	-10/+70	60	180	50	230	180
		FDA		FDA	● <sup>2)</sup>	60	160	-10/+70	30	90			
					● <sup>2)</sup>	60	1400	-10/+70	100	150			
		FDA		FDA	● <sup>2)</sup>	60	540	-10/+70		120			
		FDA		FDA	● <sup>2)</sup>	60	710	-10/+70		150			
				FDA	● <sup>2)</sup>	60	1250	-10/+70		150			
		FDA		FDA	● <sup>2)</sup>	60	470	-10/+70	80	80			
		FDA		FDA	● <sup>2)</sup>	60	600	-10/+70	90	80			
		FDA		FDA	● <sup>2)</sup>	60	1200	-10/+70	100	140			
				FDA	● <sup>2)</sup>	60	65	-10/+70	30	70	30	70	50
				FDA	● <sup>2)</sup>	60	260	-10/+70	40	120	45	120	90
			● <sup>2)</sup>			65	25	-30/+80	30	30	30	40	30
			● <sup>2)</sup>			65	55	-30/+80	30	50	30	70	60
			● <sup>2)</sup>			65	100	-30/+80	30	80	30	90	60
			● <sup>2)</sup>			65	120	-30/+80	30	90	30	90	60
			● <sup>2)</sup>			65	170	-30/+80	30	110	30	90	90
	FDA	FDA		FDA	FDA	87	140	-30/+80	30	50			
	FDA	FDA		FDA	FDA	87	180	-30/+80	30	50			
		FDA		FDA	FDA	87	220	-30/+80	30	50			
	FDA	FDA		FDA	FDA	87	250	-30/+80	30	50			
				FDA	FDA	87	280	-30/+80	30	50			
			● <sup>2)</sup>			87	100	-30/+80	30	70	30	70	50
			● <sup>2)</sup>			87	290	-30/+80	40	120	45	120	90
			FDA			92	55	-30/+100	30	70	30	70	60
			FDA			92	100	-30/+100	30	120	30	100	80
			FDA			92	170	-30/+100	30	140	30	110	90
			FDA			92	85	-30/+100	30	70			
			FDA			92	135	-30/+100	30	70			
			FDA			92	180	-30/+100	30	70			
			FDA			92	240	-30/+100	30	70			
			FDA			92	270	-30/+100	30	70			
			FDA			92	290	-30/+100	30	70			

\* The d<sub>min</sub> specifications for the belt, the profiles and the sidewall must be taken into consideration when determining the drum diameters. The largest value is the most important factor and a smaller diameter may not be used. The specifications for d<sub>min</sub> are standard values determined at normal ambient conditions (20 °C/50 % humidity). Lower temperatures require larger diameters.

<sup>1)</sup> Can be used only in conjunction with sidewalls.

<sup>2)</sup> Available, but not BfR/EU or FDA approved.

# PROFILES AND SIDEWALLS

## Sidewall product range

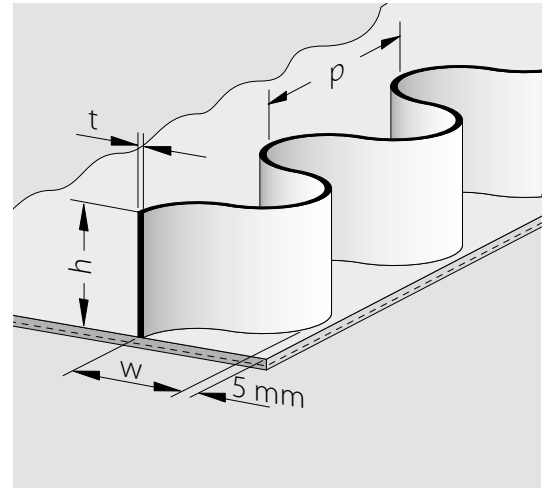
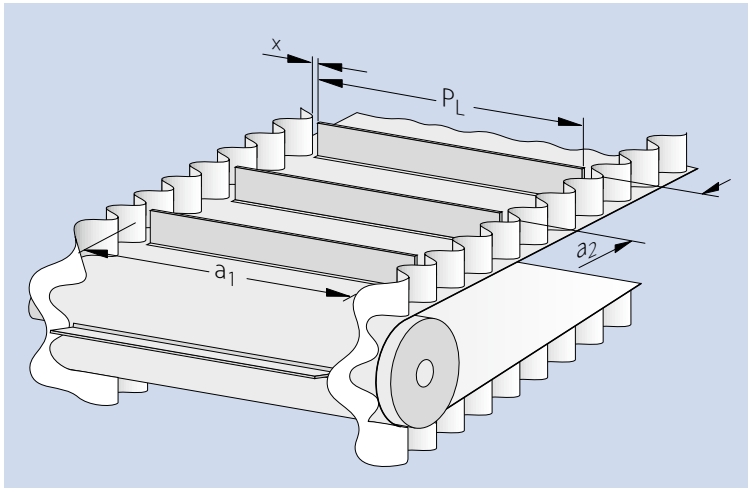
	Article number	Thickness t [mm]	Height h [mm]	Width w [mm]	Spacing p [mm]	Shore A hardness	d <sub>min</sub> approx. [mm]*	Permissible operating temperature [°C]	Fabric reinforced
<b>PVC</b>									
FWG 5X40/P67-V60 green	882020	5	40	52	67	60	100	-10/+70	●
FWG 5X60/P67-V60 green	882021	5	60	52	67	60	150	-10/+70	●
FWG 5X80/P67-V60 green	882022	5	80	52	67	60	200	-10/+70	●
FWG 5X40/P67-V60 white FDA	882023	5	40	52	67	60	100	-10/+70	●
FWG 5X60/P67-V60 white FDA	882024	5	60	52	67	60	150	-10/+70	●
FWG 5X80/P67-V60 white FDA	882025	5	80	52	67	60	200	-10/+70	●
FW 5X33/P67-V60 green	881150	5	33	52	67	60	80	-10/+70	
FW 5X40/P67-V60-HACCP white FDA	880640	5	40	52	67	60	100	-10/+70	
FW 5X60/P67-V60-HACCP white FDA	880641	5	60	52	67	60	150	-10/+70	
FW 5X80/P67-V60-HACCP white FDA	880642	5	80	52	67	60	200	-10/+70	
FW 5X40/P67-V60 green	880646	5	40	52	67	60	100	-10/+70	
FW 5X60/P67-V60 green	880647	5	60	52	67	60	150	-10/+70	
FW 5X68/P67-V60 green	882127	5	68	52	67	60	175	-10/+70	
FW 5X80/P67-V60 green	880648	5	80	52	67	60	200	-10/+70	
<b>Urethane</b>									
FW 2X30/P30-U87 green FDA	882035	2	30	36	30	87	50	-30/+80	
FW 2X40/P30-U87 green FDA	882036	2	40	36	30	87	80	-30/+80	
FW 2X30/P45-U87 green FDA	881246	2	30	36	45	87	80	-30/+80	
FW 2X40/P45-U87 green FDA	881247	2	40	36	45	87	100	-30/+80	
FW 2X60/P45-U87 green FDA	881248	2	60	36	45	87	150	-30/+80	
FW 2X30/P30-U87-HACCP white FDA	882037	2	30	36	30	87	50	-30/+80	
FW 2X40/P30-U87-HACCP white FDA	882038	2	40	36	30	87	80	-30/+80	
FW 2X30/P45-U87-HACCP white FDA	881243	2	30	36	45	87	80	-30/+80	
FW 2X40/P45-U87-HACCP white FDA	881244	2	40	36	45	87	100	-30/+80	
FW 2X60/P45-U87-HACCP white FDA	881245	2	60	36	45	87	150	-30/+80	
<b>Polyester</b>									
FW 2X40/P45-E92 transparent FDA	881213	2	40	36	45	92	100	-10/+100	
FW 2X60/P45-E92 transparent FDA	881214	2	60	36	45	92	150	-10/+100	
FW 2X80/P67-E92 transparent FDA	881155	2	80	46	67	92	200	-10/+100	

## Type key

FWG 5 x 40 / P67 - V60 green									
									Color
									Hardness [Shore A]
									Material
									Pitch p [mm]
									Height h [mm]
									Thickness t [mm]
									Fabric reinforced
									Flat profile sidewall

\* When establishing the drum diameter, the d<sub>min</sub> of the belt, the lateral profile and the sidewall must be taken into account. The highest value is vital and must be adhered to. The d<sub>min</sub> figures are guidelines. They were determined at normal ambient conditions (20°C/50% humidity.) Lower temperatures require smaller diameters.





#### Finished belt sizes available

Length: 2600 to 60000 mm, Width: 200 to 1300 mm

#### Recommended splicing method

Stepped overlap or stepped Z-splice

#### Inner distance between sidewalls

$a_1 = 100$  to  $1200$  mm

(for  $a_1 < 150$  mm deviations in edge parallelism are possible)

#### Maximum profile length $PL_{\max}$

$PL_{\max} = a_1 - 2x$  (at  $x = 2 \pm \frac{3}{8}$ )

#### Sidewall amplitude tolerances

$\pm 1.0$  mm

#### Manual splice tolerances

amplitude  $\pm 3.0$  mm; spacing distance  $\pm 1.5$  mm

# TONGUE-MOUNTED AND FLEX-ACTION CLEATS

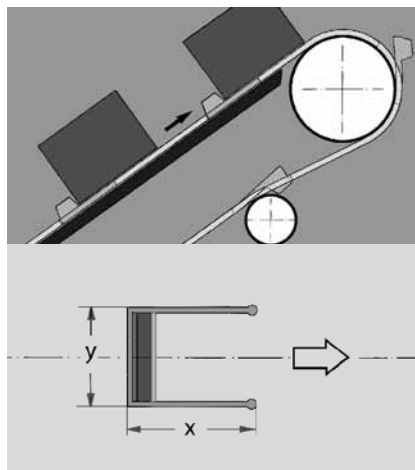
## Tongue-mounted cleats

With tongue-mounted and flex-action cleats it is possible to convey unit goods on inclines without problems – even at steeper incline angles.

A tongue is punched into the belt material in tongue-mounted cleats and a slit on flex-action cleats, on which a profile is applied laterally.

On the conveying side, the tongue or flexible section lies, like the belt itself, flat on the slider bed and makes form-fit conveying of unit goods on inclines possible. (Rollers with flex-action cleats can be used in some cases).

On the return side, the profile on the relatively narrow longitudinal strip flexes inwards when the belt runs over snub or support rollers. As a result, belts with tongue-mounted and flex-action cleats can be retrofitted in existing conveyors without design modifications.

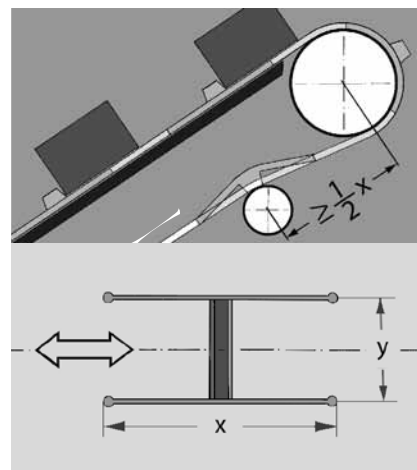


Profile	Tongue length (x) [mm]	Tongue width (y) [mm]
K 10	45 – 50	50 or 70
K 13	45 – 50	50 or 70
K 15	50 – 55	50 or 70
K 17	50 – 55	50 or 70

For other designs please inquire.

Tongue-mounted cleats only carry unit goods upwards. The slider bed should be located as close as possible to the snub rollers to prevent the profiles from sagging on the conveying side.

## Flex-action cleats



Profile	Length of flexible section (x) [mm]	Width of flexible section (y) [mm]
K 10	250	50 or 70
K 13	250	50 or 70
K 15	250 or 400	50 or 70
K 17	250 or 400	50 or 70

For other designs please inquire.

Flex-action cleats are suitable for inclined and declined conveying. Belts with flex-action cleats are preferred for upwards conveying where the slider beds are too short, have gaps or are installed at a higher level than the snub rollers.

# MODIFYING BELTS

## Perforations



In Siegling Transilon material almost any perforation configuration can be achieved within narrow tolerances ( $\pm 1$  mm regarding the center distance of the perforation) – please inquire about the perforation configuration you require. Special designs with metal eyelets are also available. Please note that the width of the belt material might shrink due to pre-tensioning (about 30% of the elongation

at fitting lengthways – see brochure no. 256).

Perforated belts are not suitable for form-fit transmission of force. Ask your Forbo Siegling contact person for alternatives.

An overlap or stepped Z-splice should be used for perforated belts, because perforations can also be applied to these sorts of splices.

## Applying free forms

By precisely milling the surface of the belt and cutting virtually any types of perforations, Forbo Siegling offers a range of new options for many production processes. We can supply more detailed information on request.

## Modifying belts with lasers

Positioning and control markings, logos, graphics, technical information and much more can be lasered into the surface of the belt. No material is added, a different color is merely applied to the surface of the belt. Because of its extreme durability, precise positioning and crisp printing results, this process opens up new ways of using belts.

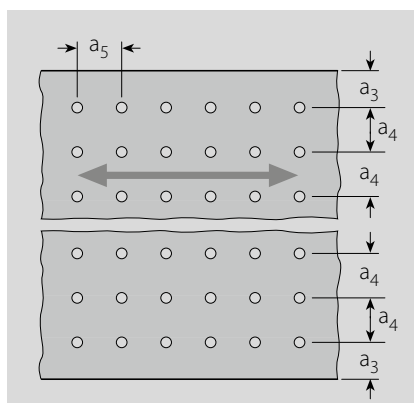
You can find more information in our Real added value due to innovative laser technology brochure (ref. no. 123 – download at [www.forbo.com/movement](http://www.forbo.com/movement) > Download).

**Maximum belt width  $b_0$  [mm] = approx. 3000 (for several perforations)**

**Diameters of perforations  $d$  [mm]:**

4	5	6	7	8	9	10	11	12
13	14	16	18	19	20	30		

**Tolerance  $\pm 1$  mm**



### Rows of perforations with identical diameters

Distance from edge [mm]

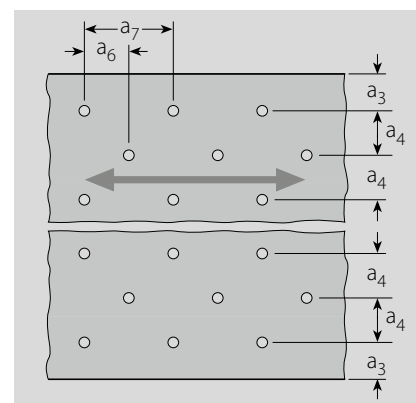
$$a_{3 \min} = d/2 + 25$$

Distance between perforations, longitudinal [mm]

$$a_{5 \min} = d + 35$$

Distance between perforations, lateral [mm]

$$a_{4 \min} = d + 35$$



### Off-set rows of perforations with identical diameters

Distance from edge [mm]

$$a_{3 \min} = d/2 + 25$$

Distance between perforations, longitudinal [mm]

$$a_{6 \min} = d + 25$$

$$a_{7 \min} = d + 25$$

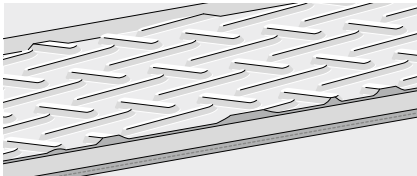
Distance between perforations, lateral [mm]

$$a_{4 \min} = d + 35$$

### Tolerances for elevator belts

Center distance of perforation [mm]	Tolerance [mm]	Screw size	Perforation [mm]
40 – 50	$\pm 1$	M 6/M 7 M 8/M 9	+1
63 – 125	$\pm 2$	M 10/M 12 M 13/M 14	+2

# TOP FACE PATTERNS



Siegling Transilon patterned belts guarantee good grip or good release properties, depending on the design and goods conveyed.

Conveying angles of up to 30° can be achieved without profiles with certain patterned belts.

So patterned belts are not just an affordably-priced alternative to profile belts. The combination of patterned belts with longitudinal or lateral profiles is often possible.

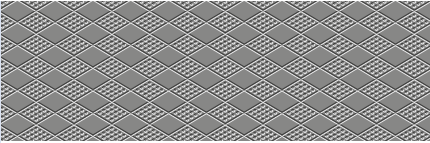
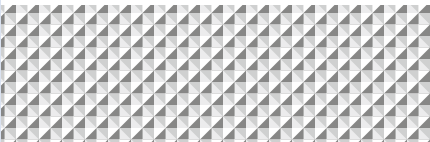
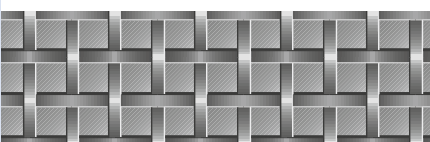





Patterns can be peeled off from the belt edge up to a width of 150 mm (e.g. for clamps in swan-neck conveyors – see fig. on left).

Properties
Good draining properties (wet areas)
Easy to clean
Wear resistant
Low-noise in counter-bending
Inclined conveying
FDA design available

	AR	STR	LG	RF	Coarse texture	Normal texture	Fine rhomboid
AR							
Rough-top (Scale 1:1)							
GSTR							
Coarse texture (Scale 1:1)							
STR							
Normal texture (Scale 1:1)							
LG							
Longitudinal groove (Scale 1:1)							
RF							
Fine rhomboid (Scale 1:1)							

Properties					
Good draining properties (wet areas)	Easy to clean	Wear resistant	Low-noise in counter bending	Inclined conveying	FDA design available

● = applicable  
○ = applicable to a limited extent

	●		○		●	
	○	○	●	○	●	
●	○		○	●		
●	●	●			●	
●	○	●		●		
		●		●		
●		●		●		
●	○	●		●	●	

## Splice

The splice types specified in Technical Information 1 (ref. no. 317) can be used, depending on the belt type.

# BELT EDGE SEALING



Belt edge sealing prevents oil, grease, water, foreign bodies and bacteria from penetrating the belt. At the same time, it increases the service life of the conveyor belt.

This additional protection can be applied to virtually every Siegling Transilon conveyor belt. You can find detailed information on the combinations possible in our data sheets.

All common types of splice can be used on Siegling Transilon belts with belt edge sealing.

## Smartseal

A special press heats the edges of the belt material. The melted section at the sides is reshaped, seals the fabric reliably and can even be repaired. In this process, the belt edge is always the same color as the belt itself. The colors intermingle if the color of the layers is different.



## Proseal

A round cord is welded onto the edge of the belt.

This type of belt edge sealing is used on narrow belts and belts with special colors.



## Combinations of materials

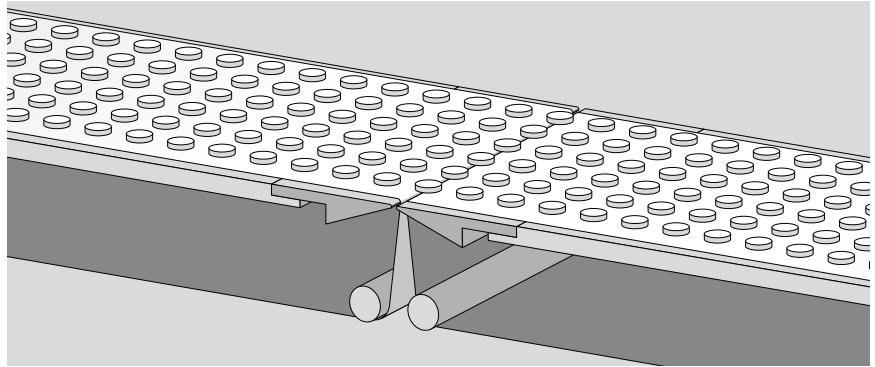
Process	Top face coating	Belt thickness from/to [mm]	trans- parent	white	green	blue	Belt widths from/to [mm]
Smartseal	A; E; U; V; 0	0.7 – 4.5	●*	●*	●*	●*	30/150*** – 4000
Proseal	0; U0	0.7 – 2.7		●	○	●	40 – 1000**
	A	2.5 – 3.7	●				40 – 1000**
	E	1.7 – 2.2	●				40 – 1000**
	U; UxS	0.7 – 2.7		●	○	●	40 – 1000**
	V; VxS	1.2 – 4.5		●	●	●	40 – 1000**

\* For technical reasons, same as color of belt, \*\* larger widths on request, \*\*\* Depending on the material

● available    ○ on request

We do not claim that all the information is complete and correct and it may differ for some types. Please get in touch with your Forbo Siegling contact.

# KNIFE EDGE BELTS



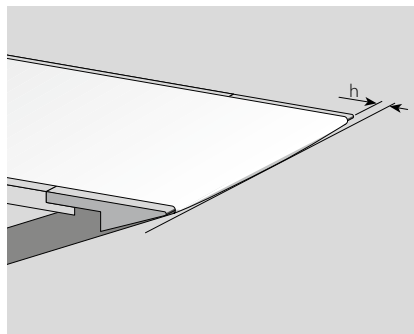
Siegling Transilon knife edge belts are especially flexible longitudinally and rigid laterally. They are suitable for use on knife edges as of 3 mm radius.

Even wide belts run flat, so even light-weight goods remain in position.

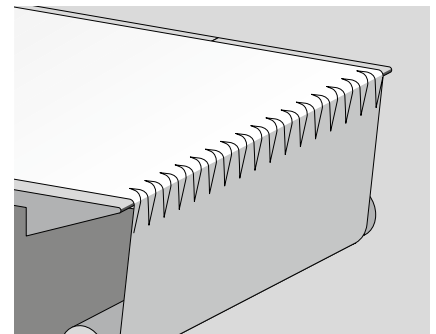
With their high coefficients of thermal conductivity, knife edge belts are exceptionally well suited for use as cooling tunnel belts. They are food safe, largely impervious to oils and greases and meet BfR, EU and FDA stipulations when conveying unpackaged foodstuffs. They can also be supplied in blue and white HACCP design.

Since the power consumption of knife edge belts is higher, the arc of contact should be kept as small as possible.

Long conveyor belts running over knife edges (e.g. cooling tunnels) usually have edge-mounted tracking devices.



Shorter knife edge belts (e. g. at transfer points and tray belts) can be tracked well if a crown (h) is added to the knife edge or in reverse operation to both knife edges.



## Z-splice

Due to its high flexibility and durability, we recommend the hot-pressed Z-splice for knife edge belts. The standard splice is 90°. A 60° or 80° splice is also possible for this type (particularly smooth operation).

By using special splice films, almost identical friction coefficients are achieved on the underside of the splice. This makes belt travel smoother and running times longer.

Further information about finishing, types available, standard sizes and tolerances can be found in Technical Information 1 (ref. no. 317).

Further information on fitting knife edge machinery can be found in Recommendations for conveyor design, ref. no. 305.

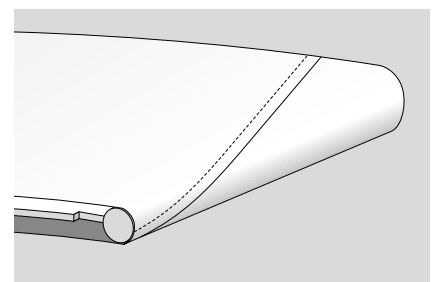
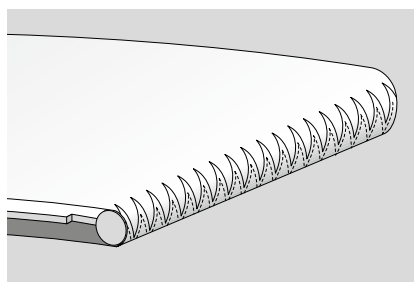
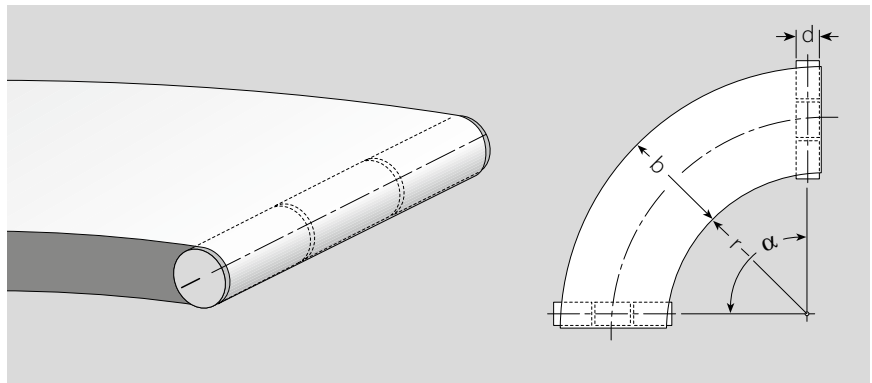
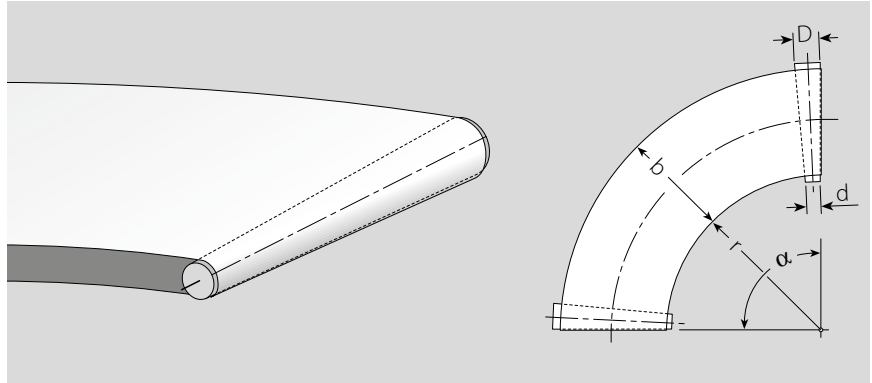
# CURVED BELTS



Thanks to their fabric design, Siegling Transilon curved belts are exceptionally flexible, both laterally and longitudinally, ensuring an optimal distribution of forces within the belt.

Depending on the application, either conical or cylindrical drums are used, or in some cases even knife edges or rolling knife edges.

Curved belts can be fabricated from one or more segments. Fabrication from several segments improves the distribution of forces within the belt. Curved belts can be equipped with perforations or eyelets along the edges so they can be attached to tracking systems later on.



## Standard curved belt dimensions [mm]

$r_{\min}$  = 250 mm  
 $b_{\max}$  = 4500 mm

Special dimensions on request

## Z-splice

1-ply types are made endless with a Z-splice.

## Stepped Z-splice

For 2-ply curved belts we recommend the stepped Z-splice. It has the same flexibility properties as the Z-splice, but can better absorb the lateral forces that arise in the curved belt.

## Diagonal wedge or overlap splice

These two splice types can be used as an alternative if a stepped Z-splice cannot be fabricated. Both splice types enable the belt splice to roll over the drum evenly and can also absorb the lateral forces that arise.



# SPECIAL BELT PROPERTIES

## Antistatic belts



In the case of multi-layer types, Siegling Transilon belts with an anti-static finish usually have an electrically conductive antistatic agent, which is embedded in the belt to prevent it from wearing off.

It effectively prevents static build-up from the running belt. Antistatic belts do not always guarantee discharge of previously statically-charged conveyed goods, e.g. in the nonwovens industry, when conveying plastic or electronic components. In these cases HC belts should be used, particularly when they have to be ESD safe.

Based on the DIN-EN-ISO 284 thresholds, the resistance ( $R_{Di}$ ) measured in compliance with ISO 21178 lengthways is parallel to the surface of the belt  $R_{Di} < 3 \times 10^8 \Omega$ .

### Splice

The splice types listed in Technical Information 1 (ref. no. 317) can – depending on type – be used for anti-static Siegling Transilon belts.

## NA (Non-antistatic)



Siegling Transilon NA belts are produced without an electrically conductive anti-static element. Tested according to ISO 21178 the electrical surface resistance  $R_{Di}$  is more than  $3 \times 10^8 \Omega$ .

Combined with the coating materials appropriate in each case, NA belts guarantee smooth operation when using in electro-magnetic fields such as machine components with high frequency, X-ray and microwave applications.

NA belts in many different coatings with specific properties for particular products provide a high safety standard, in particular because of stringent quality controls, in the food and tobacco, chemical, pharmaceutical and particle board industries. As a result, sensitive metal detectors perform very well with Siegling Transilon NA belts.

### Splice

The splice types specified in Technical Information 1 (ref. no. 317) can be used for Siegling Transilon NA belts, depending on the belt type. It is not possible to use mechanical fasteners made of steel if metal detectors are in use or in microwave applications.

## HC (Highly-conductive)



Siegling Transilon HC belts (Highly Conductive) have a special, antistatic finish, usually in the form of a conductive top face and underside. Measured in line with ISO 21178, the electrical surface resistivity of the top face and underside is  $R_{OA} < 3 \times 10^8 \Omega$ .

In the majority of belt types, the surface resistivity  $R_{OA}$  of the top face and underside is even less than  $1 \times 10^7 \Omega$  and as a result falls significantly short of the threshold stated in DIN-EN ISO 284. Numerous belt types (HC+) also have an electrical volume resistance  $R_D < 1 \times 10^9 \Omega$ , verified in accordance with ISO 21178.

HC belts are particularly suitable for conveying electronic components and anywhere where, if the belts and the goods conveyed are charged, there is a detrimental effect on product quality e.g. in the nonwoven or chemical industries.

If the belts have to be ESD safe, only HC belts can be used. Should the belts be required for ESD applications, we recommend consulting application engineers at Forbo Siegling to discuss the technical details.

### Splice

The splice types specified in Technical Information 1 (ref. no. 317) can be used for Siegling Transilon HC belts, depending on the belt type.

# SPECIAL BELT PROPERTIES

## Accumulation belts



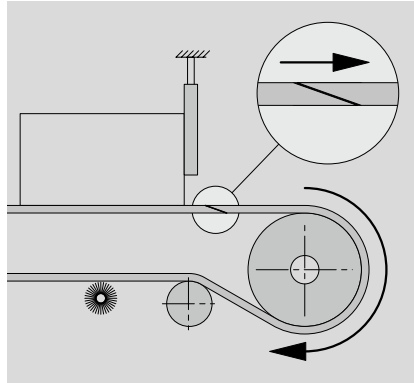
Accumulation belts are used when collecting conveyed goods behind a barrier or when sliding onto or off a belt. The particularly stiff design of the belts ensures level conveying in larger belt widths. Therefore, pushing unit goods on or off from the side is no problem at all.

Minimum friction coefficients between slider bed and underside and accumulation goods and top face must be maintained so that required power and wear and tear is kept low.

Siegling Transilon accumulation belts with duroplastic urethane coating (UH or U2H) are particularly abrasion resistant and have low friction coefficients. These properties guarantee long durability and reduce maintenance costs.

To eliminate belt mistracking that might be caused by loading or unloading of goods from the sides, we recommend:

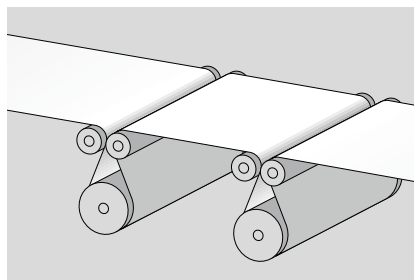
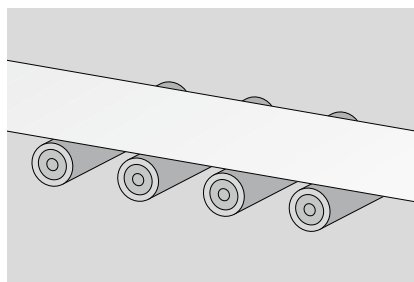
- lagging all support rollers in the loading area so as to increase the drag between them and the belt which counterbalances the lateral forces
- designing the conveyor for increased belt wrap around the drums/rollers in the loading area (also advisable in the case of eject mechanisms).



### Splice

The splice types specified in Technical Information 1 (ref. no. 317) can be used for Siegling Transilon accumulation belts, depending on the belt type, but a Z or stepped Z-splice is preferred.

When using overlap and wedge splices please note: Because of the unusual load on the top face in accumulation, the splice lap must decline from the top face (see fig. at the top).



## SE/FR (flame retardant)



Tunnels connecting terminals or stories are a potential fire risk.

Flame retardant Siegling Transilon belts (SE/FR) prevent the fire from spreading. In keeping with EN 20340/ISO 340 (SE) and MSHA Std 2G (30CFR18.65) measured according to ASTM D-378 (FR) these belts extinguish after being subjected to an open flame and do not reignite should they come into contact with a stream of air.

SE and FR belts ensure extra safety in baggage and freight handling in distribution centers and at airports.

### Splice

The splice types specified in Technical Information 1 (ref. no. 317) can be used for Siegling Transilon SE belts.



Flame-retardant belts cease to burn within seconds as soon as they are no longer subjected to an open flame.

## ATEX-compliant processing belts



The suitability of processing belts is outlined in ATEX manufacturer and compliance declarations, issued in conjunction with an officially nominated body (TÜV – German Technical Supervisory Body).

Detailed operating instructions, with information on how to use the conveyor in compliance with ATEX, are part of the compliance declarations.

The 94/9 EC directive, known in the industry as the ATEX 95 directive, on preventing ignition risks in explosive atmospheres, came into force on July 1, 2003. It has since been replaced by the updated ATEX 2014/34/EU directive.

When used in conveyors, processing belts are also at risk of ignition from static electricity or friction heat, if they are not used properly. Two partners are responsible for seeing this is done: the belt supplier and conveyor manufacturer.

As a belt supplier, Forbo Siegling faces up to this responsibility and if required, will supply processing belts that may be used in an explosive atmosphere.

Ask your Siegling contact person about the types currently available because we're constantly adding to our ATEX product range. And we provide advice tailored to our customers' needs and current and future ATEX issues too.

While the current ATEX directive 2014/34/EU deals with operation of new machinery, ATEX directive 137 (workplace directive 1999/92/EC) came into force in July 2006. As part of the regulation on safety in the workplace, it governs the operation of machinery that could cause explosive atmospheres.

Therefore, when old machinery is operated, processing belts will have to be supplied and used in compliance with the later ATEX directive.

## Siegling – total belting solutions

Committed staff, quality oriented organization and production processes ensure the constantly high standards of our products and services. The Forbo Siegling Quality Management System is certified in accordance with ISO 9001.

In addition to product quality, environmental protection is an important corporate goal. Early on we also introduced an environmental management system, certified in accordance with ISO 14001.



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### Forbo Siegling service – anytime, anywhere

The Forbo Siegling Group employs more than 2,500 people. Our products are manufactured in ten production facilities across the world. You can find companies and agencies with warehouses and workshops in over 80 countries. Forbo Siegling service points are located in more than 300 places worldwide.

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