

# Textiles – Yarn Production

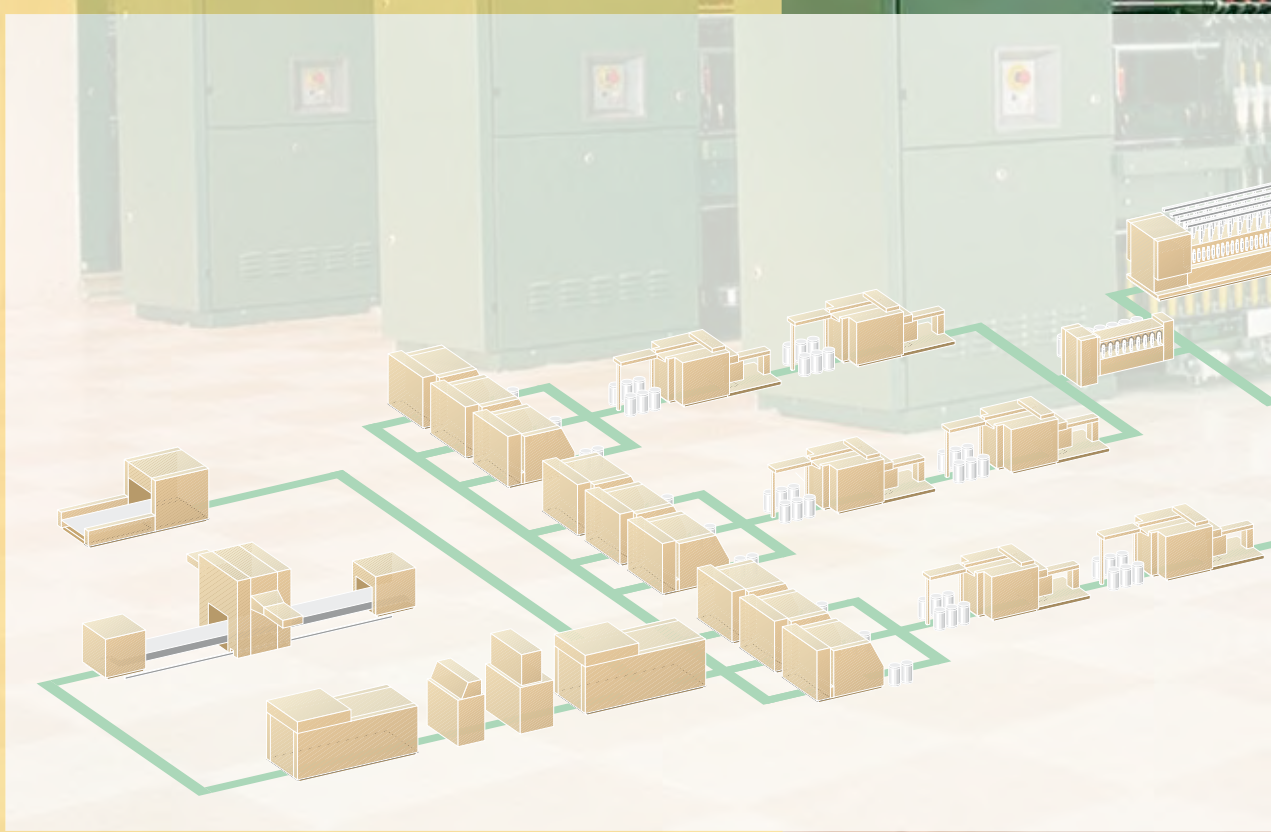
## siegling belting



Siegling – total belting solutions

forbo

MOVEMENT SYSTEMS



# Ensure quality, boost productivity

**In close cooperation with textile producers and manufacturers of the machinery, Forbo Siegling develops power transmission and conveyor belts for yarn and textile production. As a leading manufacturer, our products and services help make machinery and processes more flexible and productive worldwide.**

The Siegling Extremultus A+E lines, with thermoplastic aramide or polyester tension members, are superb examples. These are just some of their outstanding properties that set them apart from conventional belts with polyamide tension members:

- up to 60% greater power transmission
- up to 40% faster belt speeds
- up to 50% less belt slip and power consumption.

Our products and application technology expertise stand for:

- advanced power transmission solutions to increase performance and quality with Siegling Extremultus spindle and flat belts
- flexible solutions with Siegling Transilon conveyor and processing belts for efficient material flow from the bales to the packaging of the cross-wound bobbins.

## Contents

### Siegling Extremultus

Power transmission and tangential belts – a comparison of the types 4

The right type of belt for every application 6

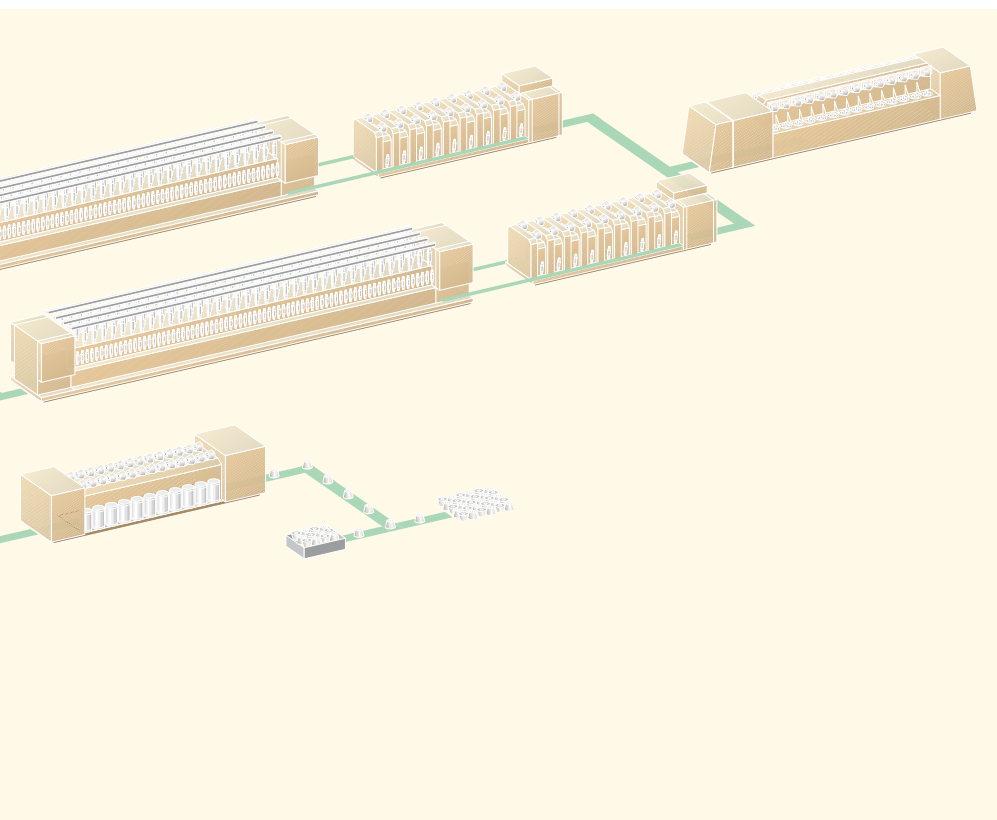
Perfect splice technology 9

Excerpt from the product range 10

### Siegling Transilon

Applications for conveyor and processing belts 12

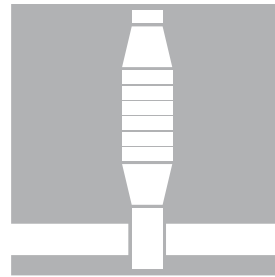
Excerpt from the product range 14



**Forbo**

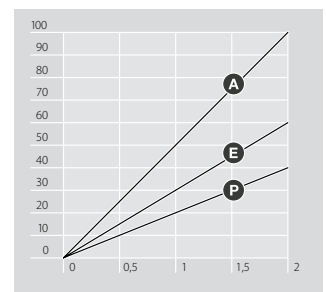
MOVEMENT SYSTEMS

# Power transmission and tangential belts – a comparison of the types

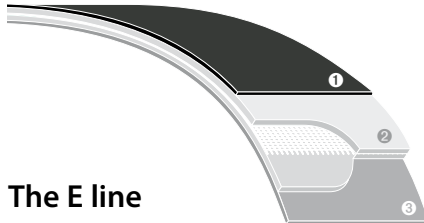


- ❶ Top layer (towards spindle)
- ❷ Tension member
- ❸ Friction layer (towards drive)
- Characteristics of the tension member
- Elongation at fitting
- Flexibility
- Damping properties
- Splice type
- Other

Elongation at fitting/shaft load in comparison



## siegling extremultus flat belts



### The E line

Highly wear-resistant friction coating made of elastomer G (black) or polyester blended fabric T (spindle belt)

Thermoplastic tension member with polyester fabric in warp and weft

Highly wear-resistant elastomer G (grey or black) or highly wear-resistant urethane (green)

Transmission of high pull with little elongation

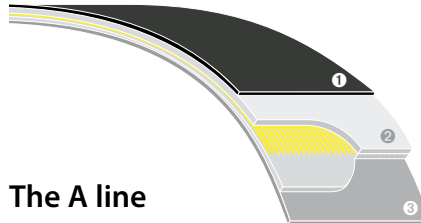
0.3 % – 2.0 %

High flexibility

Very good

Z-splice 110 x 11.5 mm, 70 x 11.5 mm or 35 x 11.5 mm; without adhesives

Power transmission belts with tension members made of polyester fabric are able to transmit high specific pull and provide very good performance at an affordable price. They are an optimal solution for virtually any application.



### The A line

Highly wear-resistant elastomer G (black)

Thermoplastic tension member with highly modular blended fabric and aramide warp

Highly wear-resistant elastomer G (grey)

Transmission of very high pull with little elongation

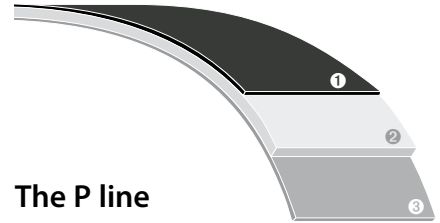
0.3 % – 1.0 %

High flexibility

Low

Z-splice 110 x 11.5 mm; without adhesives

Power transmission belts with tension members made of aramide fabric are designed for high specific pull. Careful handling is an important prerequisite for smooth-running operation in the A line.



### The P line

Chrome leather, highly wear-resistant elastomer G (black) or polyamide fabric

Highly oriented polyamide sheet

Chrome leather or highly wear-resistant elastomer G (black or grey)

Transmission of high pull

1.5 % – 3.0 %

Little flexibility

Very good

Ground wedge splice; with adhesive

Power transmission with tension members made of polyamide sheets are very stiff laterally and have good damping properties.



## The Properties

higher module of elasticity with good damping properties



maximum consistency of speed, short take-up ranges

greater power transmission efficiency of belt cross sections



greater transmission of power, space-saving machinery designs

highly wear-resistant friction coatings with constant grip



consistent yarn quality, long service life

not sensitive to ambient conditions and not susceptible to breakage



improved belt tracking, maintenance-free, increased operating reliability

Only A + E line:

very flexible



low power consumption, small drum diameters

precise Z-splice, homogeneous welded splice



spindle bearings are treated gently, less noise

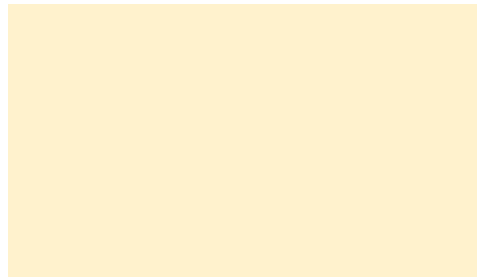
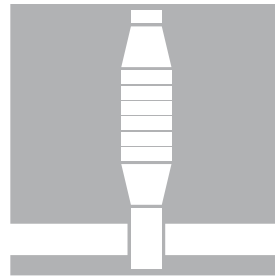
## The Advantages

The new coating generation of black and grey elastomer is now **even tougher and lasts even longer.**

Reinforced, more stable tension members enhance the performance of the new A and E line and improve its edge strength.

**This combination guarantees constant friction, consistent yarn quality and less soiling of the yarn during the belt's entire long service life.**

# The right type of belt for every application



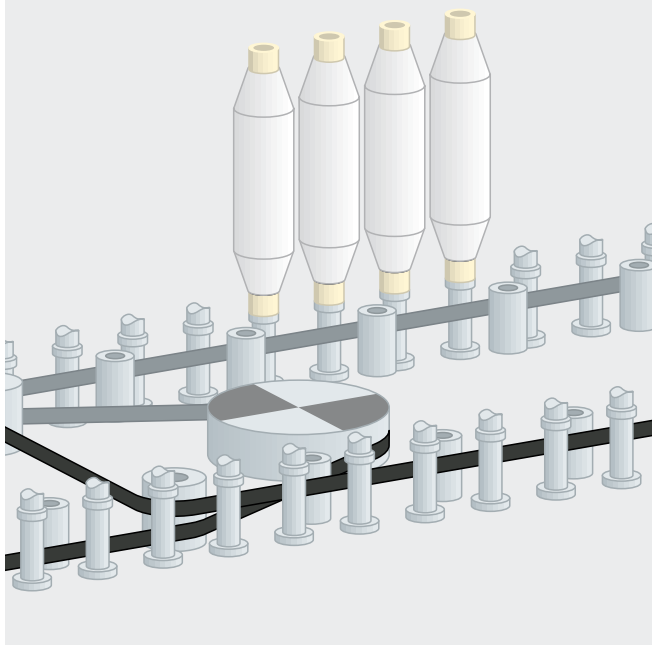
## Sectional tangential belt drives

The properties of the E line are ideal for this application.

The flexible design of the belt, with a high modulus, saves energy and minimises RPM variations in the spindle section.

The precise Z-splice ensures that the belt tracks with little oscillation, treating the machinery gently, which improves yarn quality and the service life of the drive components, while decreasing energy and maintenance costs.

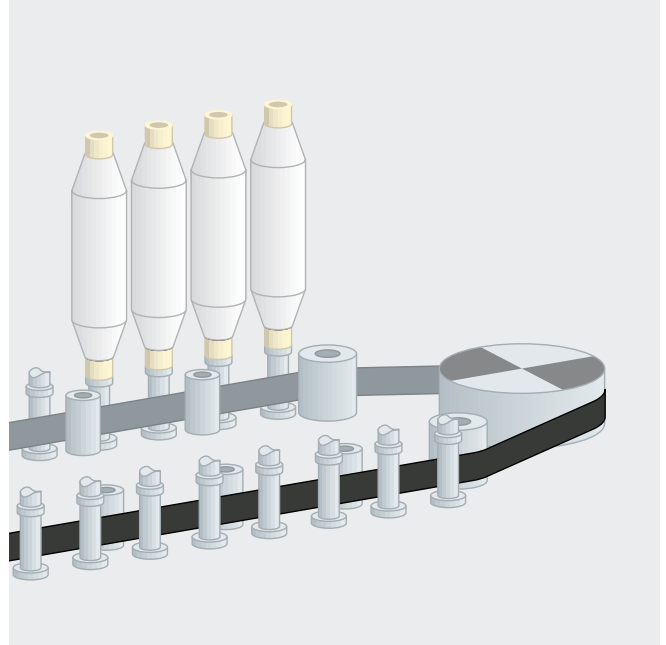
The Z-splice method ensures quick, secure splicing in the machine with low fluctuations in thickness in the splice. As a result, the belt runs smoothly and there is little wear-and-tear on the material.



## Conventional tangential belt drives

The tried and tested, good value P line tangential belts now have new, enhanced elastomer coatings that last even longer and are even tougher. They guarantee consistent spindle speed over the belt's entire service life and keep noise to a minimum thanks to the finely-patterned face towards the spindle.

An alternative is the A+E line, offering tangential belts with a high modulus and level of flexibility. As a result, the belts cut energy costs significantly (on the left).

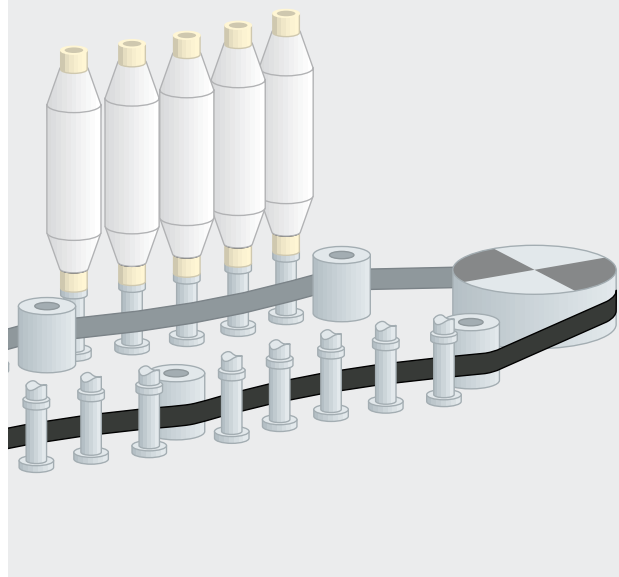


### Tangential belt drives with concave/convex drive geometry

This type operates without pressure rollers.

A tension member with a high modulus, not affected by changes, is ideal for small pulley diameters, short take-up ranges and fluctuations in ambient conditions.

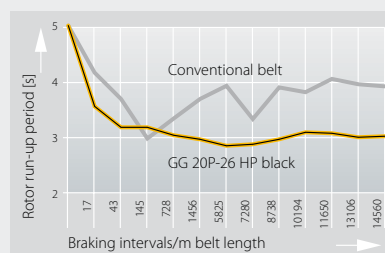
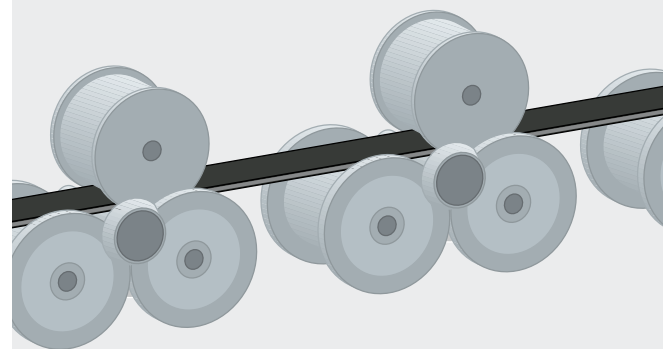
In this case, the E line can enhance the technology in the application considerably – also in terms of operating and maintenance costs.



### Rotor belts for OE machines

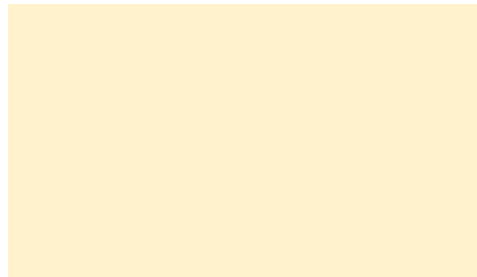
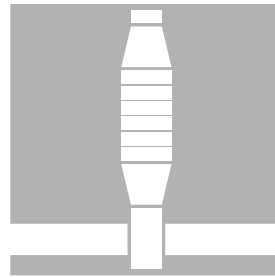
Called GG 20P-26-HP black, Forbo Siegling has created a new milestone in rotor power transmission technology: The new black elastomer coating hardens much less (does not vitrify) and will maintain constant friction during the running-in phase. As a result, consistent, short run-up periods are achieved over the belt's entire service life.

In combination with optional HP precision grinding, the belts operate particularly quietly with little vibration. This is kind to the twin disc bearing and increases efficiency and lifetime of the belt.



A belt that is a clear winner with the machinery manufacturer:  
The GG 20P-26 HP black

# The right type of belt for every application



## Spindle tapes

Siegling Extremultus spindle tapes are designed for ring spinning frames and double twisters with two, four or eight spindle drive. They are equipped with:

- permanently antistatic properties
- a coating on the pulley face made of wear-resistant polyurethane
- impregnated, wear-resistant fabric construction of the wharve side

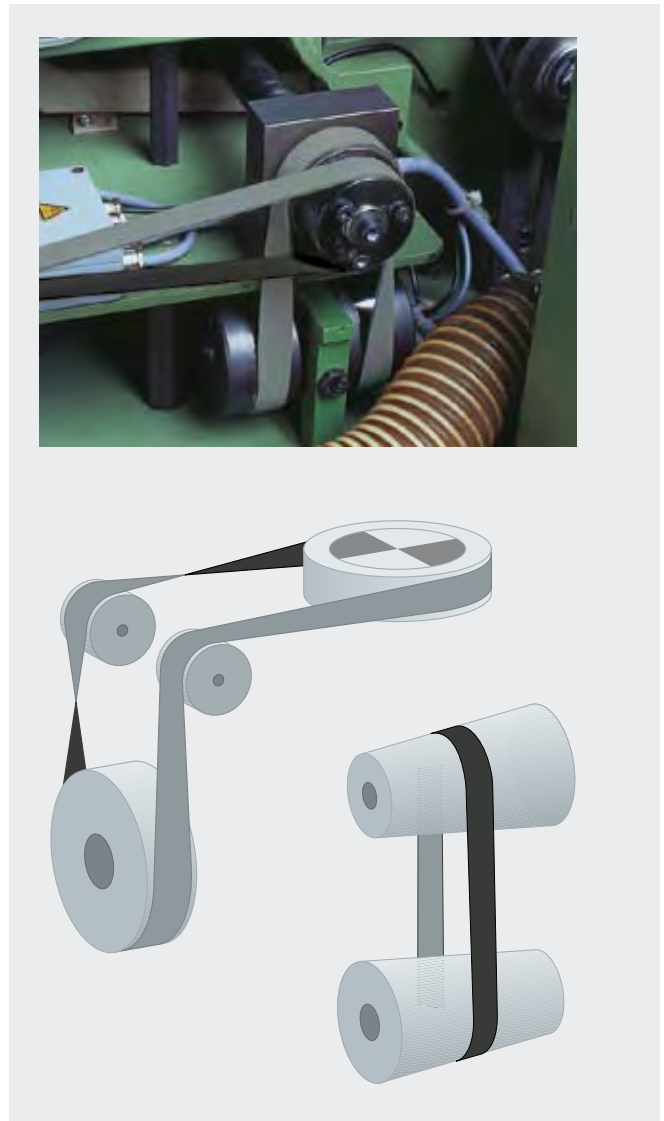
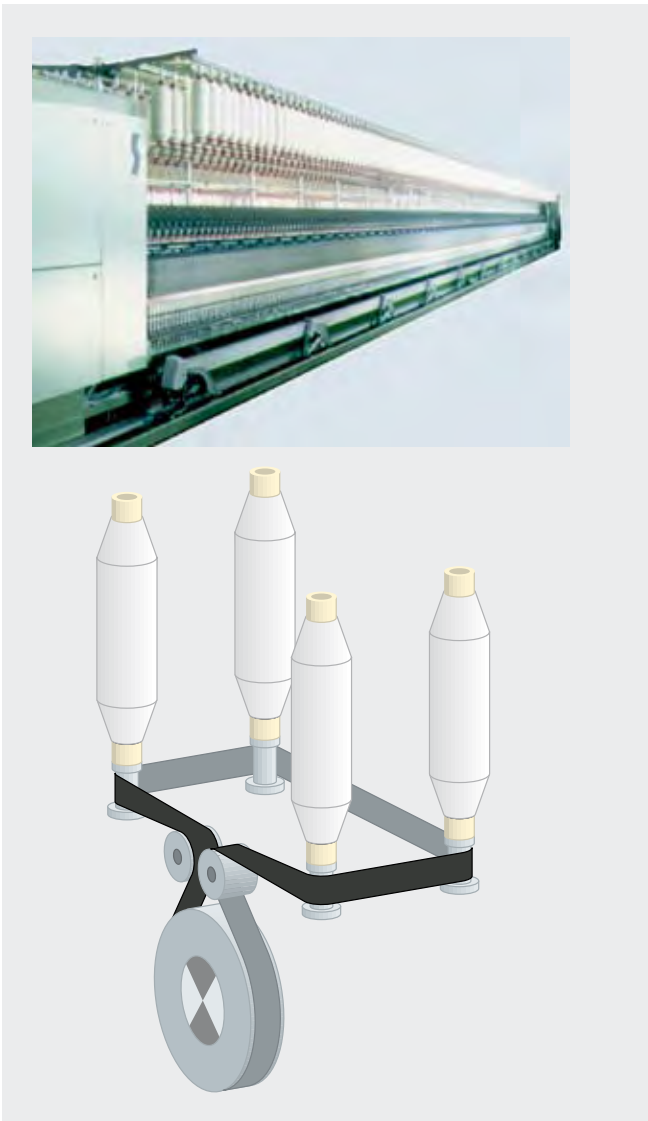
Thanks to the Z-splice, they can be made endless quickly and easily. Adhesives are not required. UT 8E requires no additional splicing film.

## High-efficiency flat belts

With long service lives, efficiency of > 98% and good damping properties, Siegling Extremultus belts are an excellent choice. Several shafts can be driven simultaneously in the same and opposite directions.

Due to their extreme flexibility, E line flat belts are ideal for rotating around the axis in running direction (mule drives).

P line flat belts are perfect for conical pulley (taper-cone drives) because of their extreme lateral rigidity and strong edges.





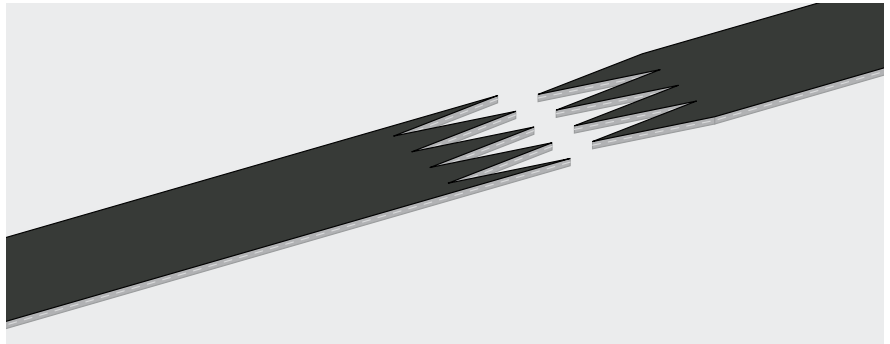
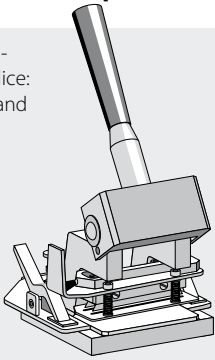
## Perfect splice technology

Thanks to our splice methods and tools, Siegling Extremultus flat belts can be made endless quickly and easily – and the A+E line does not even require any adhesives. Detailed splice instructions are available on request.

The GS-certified Siegling Extremultus SM-HC 50/40 and SM-HC 50/60 heat presses are also available with complete accessories as sets in a practical case.

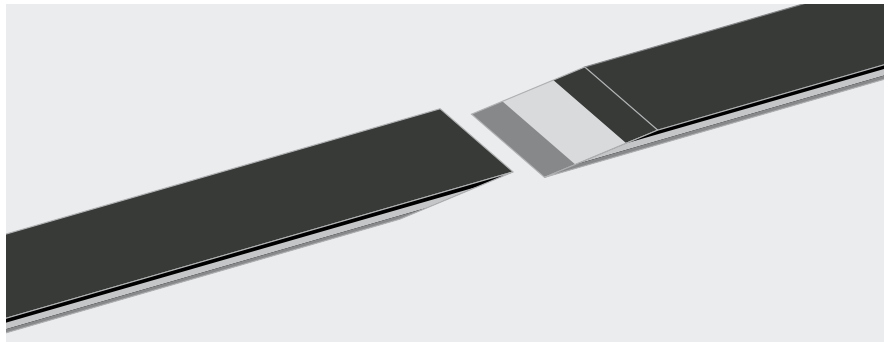
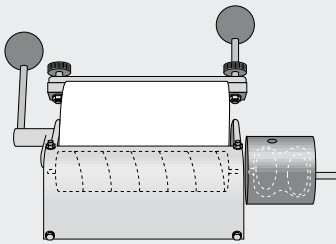
### Preparing the Z-splice (A+E line)

Manual punch-cutter for Z-splice:  
PP-ZP-V/40/3 and  
PP-ZP-V/80/6

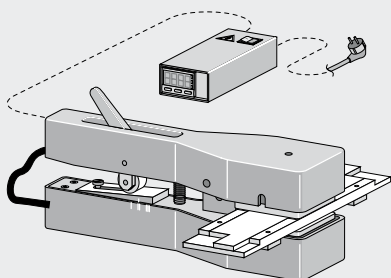


### Preparing the wedge splice (P line)

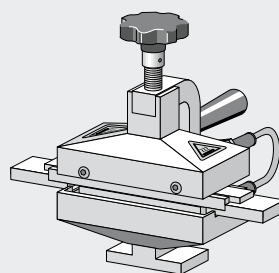
PG-GM-V/130 grinder  
for the ground wedge splice



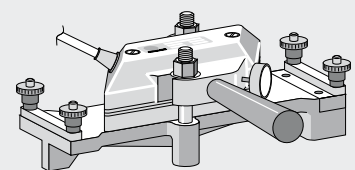
### Heating tools



SM-HC-50/40 and SM-HC-50/60  
heating clamp for the E line (Z-splice)



SMX-HC-140/40 heating device  
for the A+E line (Z-splice)



SB-HP-120/50 heating device  
for the P line (wedge splice)

## Excerpt from the product range

NEW

NEW

### A line

GG 25A-25 NSTR/FSTR grey/black  
GG 40A-32 NSTR/FSTR grey/black

### E line

GG 20E-20 NSTR/FSTR grey/black <sup>1)</sup>  
GG 30E-25 NSTR/FSTR grey/black <sup>1)</sup>  
GG 30E-30 NSTR/NSTR black  
LT 14E <sup>3)</sup>  
LT 20E <sup>3)</sup>  
LT 28E <sup>3)</sup>

### P line

GG 10P-20 NSTR/FSTR grey/black  
GG 15P-22 NSTR/FSTR grey/black  
GG 20P-25 NSTR/FSTR grey/black  
GG 20P-30 NSTR/NSTR black  
GG 20P-26 HP black <sup>2)</sup>  
GG 30P-32 NSTR/FSTR grey/black  
GG 30P-37 NSTR/NSTR black

GT 6P black  
GT 10P black  
GT 14P black  
GT 20P black  
GT 28P black

LL 10P  
LL 14P  
LL 20P

LT 10P  
LT 14P  
LT 20P

### Spindle tapes

UT 5P green  
UT 8E green

## Technical data

## Splice

Article number	Belt thickness approx. [mm]	d <sub>min</sub> [mm]*	Nominal effective pull, approx. [N/mm width]**	Nominal working elongation [% of belt length]	Max. transmittable effective pull [N/mm belt width]	Elongation at fitting [% of belt length]	Weight approx. [kg/m <sup>2</sup> ]	Permissible operating temperatures [°C] (long-term temperature)	Z-Splice splice length [mm]***	Ground wedge splice***
822130	2.5	40	25	1.0	28	0.3 – 1.0	2.7	-20/+70	110	
822131	3.2	60	40	1.0	42	0.3 – 1.0	3.45	-20/+70	110	
822145	2.0	24	20	2.0	20	0.3 – 2.0	2.2	-20/+70	35/70/110	
822126	2.5	30	30	2.0	30	0.3 – 2.0	2.75	-20/+70	35/70	
822127	3.2	60	30	2.0	35	0.3 – 2.0	3.25	-20/+70	70	
810002	2.1	40	14	1.0	14	0.5 – 1.5	2.2	-20/+70	truly endless	
810003	2.3	80	20	1.0	20	0.5 – 1.5	2.5	-20/+70	belt design with	
810004	2.9	130	28	1.0	28	0.5 – 1.5	3.2	-20/+70	polyester cord threads	
855604	2.0	30	10	2.0	12.5	1.5 – 3.0	2.15	-20/+80		●
855605	2.2	40	15	2.0	19	1.5 – 3.0	2.3	-20/+80		●
855606	2.5	60	20	2.0	25	1.5 – 3.0	2.8	-20/+80		●
855602	3.0	60	20	2.0	25	1.5 – 3.0	3.3	-20/+80		●
855615	2.6	90	20	2.0	25	1.5 – 3.5	3.0	-20/+80		●
855607	3.2	125	30	2.0	37.5	1.5 – 3.0	3.5	-20/+80		●
855603	3.7	125	30	2.0	37.5	1.5 – 3.0	3.9	-20/+80		●
850044	1.3	20	6	2.0	7.5	1.5 – 3.0	1.3	-20/+80		●
850045	1.6	30	10	2.0	12.5	1.5 – 3.0	1.6	-20/+80		●
850046	1.8	40	14	2.0	17.5	1.5 – 3.0	1.8	-20/+80		●
850047	2.5	60	20	2.0	25	1.5 – 3.0	2.65	-20/+80		●
850048	3.0	120	28	2.0	35	1.5 – 3.0	3.3	-20/+80		●
800016	3.1	40	10	2.0	12.5	1.5 – 3.0	3.1	-40/+80		●
800017	3.5	60	14	2.0	17.5	1.5 – 3.0	3.5	-40/+80		●
800018	4.4	90	20	2.0	25	1.5 – 3.0	4.2	-40/+80		●
800008	2.2	30	10	2.0	12.5	1.5 – 3.0	2.5	-40/+80		●
800009	2.4	60	14	2.0	17.5	1.5 – 3.0	2.6	-40/+80		●
800010	3.4	90	20	2.0	25	1.5 – 3.0	3.4	-40/+80		●
995381	0.7	14	5	2.0	–	0.5 – 2.0	0.5	-20/+80	35	●
822060	0.7	10	8	2.0	–	0.3 – 2.0	0.6	-20/+80	35	●

## Legend

\* Minimum drum diameter was determined at room temperature. Lower temperatures require larger drum diameters. For the P line, this also applies in the case of low humidity.

Recommended d<sub>min</sub> for power transmission:  
A line: 2.5 x type number  
E line: 2 x type number  
P line: 5 x type number  
(7 x type number at relative humidity < 40 %)

\*\* Nominal effective pull specifies the power transmission in N per mm belt width possible for the belt type (standard operating environment).

<sup>1)</sup> 35 mm Z-splice possible for certain applications

<sup>2)</sup> HP precision ground texture on both sides available only as endless belt

<sup>3)</sup> Available only truly endless

● yes/suitable

□ please inquire

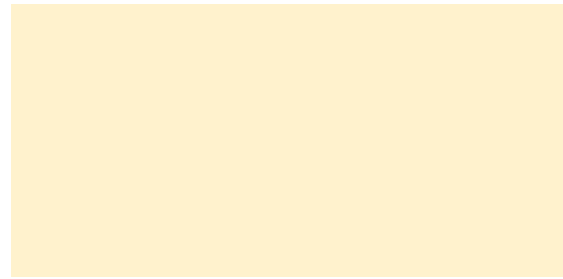
**A** = Aramide  
**E** = Polyester  
**G** = Elastomer G  
**P** = Polyamide  
**T** = Blended or polyamide fabric  
**U** = Polyurethane

**FSTR** = Fine pattern  
**HP** = Precise ground texture  
**NSTR** = Normal pattern

**NSTR/NSTR** = symmetrical structure for same operating conditions on both sides (e.g. texturing machines.)



# Applications for conveyor and processing belts



**siegling transilon**  
conveyor and processing belts

Siegling Transilon conveyor and processing belts optimise the economical, automated flow of material and also make a significant contribution to quality control and flexibility in production processes, thanks to:

- little wear and tear on the material in the delivery of the bale, in the blending and cleaning of the flock, in conveying the fibres to the cards and drawing frames or in feeding the fibre to the ring spinning frame
- the reliable removal of waste and debris and cross-wound bobbins in OE spinning frames
- increased productivity in the material flow of empty bobbins, cops or cop trays in fully automatic, linked systems, on winders and twisters right up to the intermediate storage and packaging of cross-wound bobbins.

Siegling Transilon often crosses the line between simple conveyor functions and the active participation in the production process. This product range is a versatile top performer. Excellent examples of its usage are printing blankets on rotary and silk-screen printing machines, or cross lapper belts for lapping fine, light web layers.

The table on the following pages includes an overview, sorted according to industry, of types available for yarn production.

Please do not hesitate to contact us if you would like information on our complete range of products and special processing belt applications.

Depending on the belt type and coating, Siegling Transilon is

- antistatic
- ISO/DIN and ATEX compliant
- low-noise
- resistant to oil mist and other chemical effects
- adhesive or with low drag
- smooth or patterned
- wear-resistant
- kind to materials
- resistant to soiling
- flame retardant in accordance with ISO/ASTM



## The Properties

extensive range of types	▶	ideal solutions for efficient material flow
low elongation	▶	short take-up ranges, easy to adjust, no re-tensioning required
dimensionally stable and low-noise	▶	reliable tracking even in changes in ambient conditions, reduced noise
antistatic and with cleanly cut edges	▶	long service life and minimal cleaning should fluff accumulate
light and flexible	▶	easy to fit, low energy consumption
wide range of practical accessories	▶	belts easy for customers to make endless themselves

## The Advantages

For further relevant Forbo Siegling products in the textile industry please see the following brochures:

- No. Title
- 224 Siegling Transilon conveyor and processing belts
- 278 Textiles – Textile printing
- 295 Textiles – Nonwovens

## Excerpt from the product range

		Technical Data							Splice
Article number	Top face coating	Permanently antistatic	Total thickness approx. [mm]	Weight approx. [kg/m <sup>2</sup> ]	Effective pull at 1% elongation (K <sub>1%</sub> relaxed) [N/mm width]*	d <sub>min</sub> approx. [mm]**	Permissible operating temperature [C]**	Mechanical fastener, type	
<b>Tension member of polyester fabric</b>									
E 3/2 U0/U0 transparent FDA <sup>1) 5)</sup>	Urethane impregnated	●	1.2	1.1	5	6	-30/+100	HS-02	
E 3/2 U0/U2 HACCP white FDA <sup>1) 5)</sup>	0.2 mm Urethane	●	1.45	1.6	5	6	-30/+100	HS-01	
E 4/1 P2/P2 MT/MT-HC black	0.2 mm Polyamide	HC	0.75	0.8	4	60	-30/+100	HS-02	
E 4/1 U0/V5H MT green	0.5 mm Hard PVC	●	1.1	1.2	4	30	-10/+70	HS-01	
E 4/1 V4H/V4H MT/STR green	0.5 mm Hard PVC	●	1.4	1.7	4	30	-10/+70	HS-02	
E 4/2 U0/P2 MT-HC black	0.2 mm Polyamide	HC	0.9	1.0	4	60	-30/+100	HS-01	
E 5/2 0/V5H MT black <sup>2)</sup>	0.5 mm Hard PVC	●	1.9	2.2	5	30	-10/+70	HS-13	
E 10/1 V1/Z30-Q white	3.0 mm Polyester felt	●	4.2	1.9	8	40	-30/+100	HS-11	
E 8/2 U0/V/U2H MT green	0.2 mm Hard Urethane	●	1.6	1.8	8	40/60	-10/+70	HS-02	
E 8/2 U0/U2 green FDA <sup>3) 4)</sup>	0.2 mm Urethane	●	1.4	1.6	7	25	-30/+100	HS-02	
E 8/2 0/U10 S/LG green <sup>4)</sup>	1.0 mm Urethane	●	2.2	2.2	6	40	-30/+100	HS-14	
E 8/2 Y0/V4 GSTR black	0.4 mm PVC	●	2.1	2.2	6	40	-10/+70	HS-13	
E 8/2 U0/V5 green <sup>3)</sup>	0.5 mm PVC	●	2.2	2.5	7	30	-10/+70	HS-13	
E 8/2 U0/V5H MT black <sup>2) 5)</sup>	0.5 mm Hard PVC	●	2.2	2.5	7	40	-10/+70	HS-13	
E 8/2 U0/V5 STR green	0.5 mm PVC	●	2.4	2.7	6	60	-10/+70	HS-13	
E 8/2 U0/V10 SG green <sup>4)</sup>	1.0 mm PVC	●	2.6	2.8	7	60	-10/+70	HS-13	
E 8/2 U0/V15 LG green <sup>4)</sup>	1.5 mm PVC	●	3.1	3.4	7	60	-10/+70	HS-05	
E 8/2 U0/V20 AR green <sup>4)</sup>	2.0 mm PVC	●	4.9	4.0	6	40	-10/+70	HS-05	
E 8/2 V1/V1 blue FDA	0.1 mm PVC	●	2.0	2.4	6	50	-10/+70	HS-14	
E 8/2 V5/V5 STR/GL green <sup>4)</sup>	0.5 mm PVC	●	2.65	3.2	7	40	-10/+70	HS-11	
E 12/2 U0/V/U0 transparent	Urethane impregnated	●	1.5	1.5	9	60	-10/+70	HS-03	
E 12/2 U0/V7 green	0.7 mm PVC	●	2.85	3.4	10	60	-10/+70	HS-05	
E 12/2 V5/V10 STR/GL green	1.0 mm PVC	●	3.25	3.9	11	60	-10/+70	HS-05	
E 18/H U0/U2 MT white FDA	0.2 mm PVC	●	1.75	1.8	21	20	-30/+100	KS	
<b>Tension member of polyamide sheet</b>									
P 27/3 black FDA	homogeneous Polyamide	●	3.1	3.5	27	250	-40/+80		

### Legend

\* Established in line with ISO 21181:2005

\*\* Minimum drum diameters were determined at room temperature and do not apply to conveyor belts with mechanical fasteners. Lower temperatures require larger drum diameters. Belts with profiles or sidewalls may require larger drum diameters. Please see brochure ref. no. 318, Siegling Transilon Technical Information 2.

\*\*\* Maximum permissible operating temperature may be exceeded short term by 20 °C/36 °F

<sup>1)</sup> Suitable for knife edge applications

<sup>2)</sup> Also available in green

<sup>3)</sup> Also available in white FDA

<sup>4)</sup> Also available in black

<sup>5)</sup> Also available in blue

● Yes/suitable

□ Please inquire

**E** = Polyester  
**P** = Polyamide  
**U** = Urethane  
**UH** = Hard urethane  
**V** = PVC  
**VH** = Hard PVC  
**O** = Uncoated  
**UO** = Urethane impregnated

**AR** = Anti-skid pattern  
**GSTR** = Coarse textured pattern  
**GL** = Smooth surface  
**LG** = Longitudinal groove  
**MT** = Matt surface  
**SG** = Lattice pattern  
**STR** = Normal textured pattern

**C** = Laterally flexible, suitable for curved belts

**FDA** = FDA-compliant  
**HACCP** = Supports the concept HACCP

**HC** = Highly-conductive  
**M** = Particularly stiff laterally  
**Q** = Laterally soft tension member, not for curved belts

### Supplied as

– Endless belts\*\*\*\*

– Belts prepared for hot or cold-pressing on site\*\*\*\*

– Roll material for customer to fabricate belt

– Belts with mechanical fasteners

– Belts with sealed edges

– Belts with profiles welded on (longitudinal, lateral, diagonal, half-round)

– Belts with sidewall profiles

– Belts with perforations or eyelets

– Belts with special coatings

\*\*\*\* Z-splice is standard

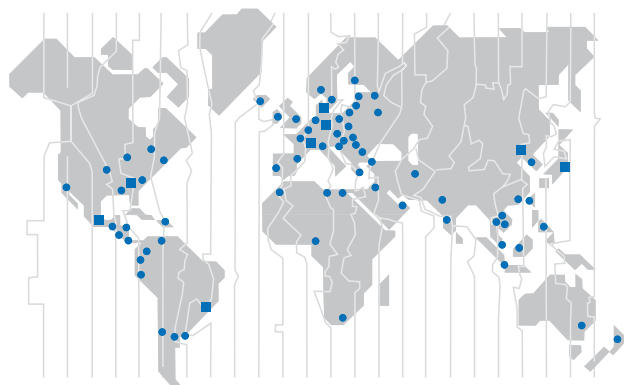
Please specify if other splice is desired.



## Siegling – total belting solutions

Committed staff, quality-orientated organisation and production processes ensure the constantly high standards of our products and services. The Forbo Siegling Quality Management System is certified in accordance with DIN EN 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.



### Forbo Siegling Service – anytime, anywhere

In the company group, Forbo Siegling employs more than 1800 people worldwide. Our production facilities are located in eight countries; you can find companies and agencies with stock and workshops in more than 50 countries. Forbo Siegling service centres provide qualified assistance at more than 300 locations throughout the world.