

# Process belts for the production of nonwovens and textile applications





Tow-in

Shaft loom heddle

#### Forming

# **Anti-static forming belts** for high-performance applications

Due to their robustness, flexibility, anti-static characteristics, and excellent cleanability, belts from the Conducto<sup>®</sup> and Conductive range make a key contribution to the efficiency of challenging production processes. Electrostatic charge can be dissipated in various ways.













Loom

Conductive - electrostatic discharge via carbon-coated filaments

#### Forming

## **Nonwoven forming** Carding, Airlaid, and Airlay

GKD offers an extensive portfolio of forming belts for production of nonwovens with staple fibers using the carding, airlaid, and airlay processes. Various mesh types are available based on fiber fineness, fiber lengths, and machine-specific parameters.

## Fabric types for drylaid and airlay nonwoven forming

Туре	CFM	Design	Application
Conductive 1100	1050	Single-ply	Airlay
Conductive 2215	580	Single-ply	Airlay
Conductive 7702	700	Two-ply	Carding
Conductive 7690	690	Two-ply	Carding
Conductive 7900	880	Two-ply	Carding

The table lists a selection of the classic mesh types for this application. Other types are available on request.

## **Guide elements**

Process belts are also available with guide elements such as V-ribs or toothed belts and are produced to customer / technical requirements.

### Tapered gib types: V-profile as per DIN 2215



Flat belt









Conducto® 7600

Conductive 7690

Conductive 7702

## Forming

## Spunlaid - Spunbond

### **Conductive 7690**

The mesh structure of the Conductive 7690 provides excellent grip when filaments are placed down on the forming belt, coupled with good release properties when nonwovens reach the end of the belt (web release). In addition, impurities caused by the process (polymer drops) can be easily cleaned from the belt, which ultimately contributes to a longer useful life. Unlike other process belts, the grippy surface does not need to be roughened up or coated through costly mechanical process before use, which reduces machine downtime. Critical materials for qualitatively sophisticated products are produced on high speed systems with a nonmarking pin seam.

- Shorter bedding-in period following belt change.
- Excellent web transport, even at high speeds.
- Excellent web release while maintaining a high level of grip.
- Easy cleaning of polymer spots (splutters)

On the Conductive 7690, electrostatic discharge is ensured via carbon-coated filaments.

#### Mesh types for spunbond nonwoven forming

Туре	CFM	Design	Anwendung
Conductive 7690	690	Two-ply	Easy Service
Conductive 7702	700	Two-ply	Universal
Conductive 7900	880	Two-ply	High air permeability

The table lists a selection of the classic mesh types for this application. Other types are available on request.





Oerlikon Nonwoven Meltblown line

Fabric with Meltblown web

### Spunbond

## Spunlaid - Meltblown

GKD offers special meshes designed for manufacturing fine fiber felt filters using the meltblown process to manufacture medicine, hygiene, or industry products. The process belts are available with a pin seam, endless woven seam (synthetic), or pin and soldered seam (metal). The metal belts can be supplied as endless belts with a soldered seam (cantilever installation) or joined on the customer's premises with soldering performed by GKD Service.

## Mesh types for meltblown nonwoven forming

Туре	Material	CFM	Design
Conductive 2215	PES	580	Single-ply
Conducto <sup>®</sup> 7600	PES/bronze	670	Two-ply
14/7,5 per cm	1.4401/1.4401	1115	Semi-twisted
14/10 per cm	1.4401/1.4401	760	Semi-twisted
14/11 per cm	1.4401/1.4401	792	Semi-twisted
18/15 per cm	bronze / 1.3912	1210	Metal cloth
25/20,5 per cm	bronze/bronze	960	Metal cloth

The table lists a selection of the classic mesh types for this application. Other types are available on request.

## Polymer filters | Air-Quench



Comprehensive mesh designs are available for filtration tasks and designed for such factors as dirt holding capacities and gel issues (square mesh, optimized dutch weaves, and very fine twilled dutch weaves). Additionally, GKD offers a range of media and individual designs for rectifier systems, catering to the systems used in the fiber and nonwoven industry.



Fiberglass mat production

## GKD process belts for **impregnation**

Application	Binder application / impregnation in fiberglass mat production
Benefit	Process belt selection to suit the fiber specification
Solution	GKD process belts made of polyester

## Typical characteristics:

- Flat warp/weft intersections
- Non-marking woven seam for cantilever installation
- Large number of bearing points with great dewatering performance

	Mesh count				
	40561780	40561830	40561865		
Mesh count	8/6,1 per cm	9.2/7.5 per cm	11/9 per cm		
Warp diameter	0.70 mm	0.65 mm	0.50 mm		
Weft diameter	0.80 mm	0.65 mm	0.50 mm		
CFM value	560 cfm	500 cfm	740 cfm		
Open area	16%	15%	21%		
Warp aperture	0.50 mm	0.35 mm	0.39 mm		
Weft aperture	0.76 mm	0.65 mm	0.58 mm		
Gewebedicke	1.58 mm	1.32 mm	1.00 mm		
Mesh thickness	Endless woven seam	Endless woven seam	Endless woven seam		





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Endless woven seam, underside



Fiberglass mat production

## GKD process belts for **drying**

Application	Drying wetlaid fiberglass mats
Benefit	Individual mesh design in line with product requirements
Solution	GKD process belts made of metal

## **Typical characteristics:**

- Various mesh designs (single, double and triple warp) for individual customer products
- Non-marking welded or soldered seams
- Great cross stability, even with large belt widths > 5.0 m
- Low belt oscillation guarantees excellent directional stability even at speeds > 400 m/min
- Cleaning possible with brush rollers, highpressure water jet, or laser.
- Long belt lengths (up to 200 m) from a single piece without additional seam

Mesh no.	Article no.	Open area	Material
6/4,5.per cm	42371640	38% - 1615 cfm	1.4401
9/4.5 per cm	42371650	28% - 1340 cfm	1.4401
8/6 per cm	41370806	31% - 1350 cfm	1.4401
4,55/4,21 per cm	41250817	51% - 2150 cfm	Bronze/1.4401

Other individual solutions on request







Fine fiberglass mat on GKD metal belt





## Bonding

## Thermal bonding and drying in **single-belt ovens**

Lightweight nonwoven layers made of PES, PE, PP, PET, BiCo variants, CV fibers are used in medical and hygiene applications.

Metal process belts with high cross stability from GKD offer high production stability for high-speed nonwovens, such as ADL nonwovens (Acquisition Distribution Layer). This is due to their outstanding even belt surface and minimal belt oscillation at high speeds.

The welded lug pin seam is an optimized seam technology and guarantees nonwoven products with no marks.



Count 6.5 per cm with nonwoven



Count 9/4.5 per cm with nonwoven

Count per cm	Article	Special feature	Material
3/3	41371715	High cross stability	1.4401 / steel
3.33 / 3.45	41100333	High cross stability	Steel / steel
3.33 / 3.45	41370333	High cross stability	1.4401 / 1.4401
6/5	41370605	High cross stability	1.4401 / 1.4401
7.5 / 4.9	41100750	High cross stability	Steel / 1.4401
7.5 / 5.2	41377552	High cross stability	1.4401 / 1.4401
6 / 4.5	42100255	High cross stability, fast-running	Steel / steel
9 / 4.5	42371650	High cross stability, fast-running	1.4401 / 1.4401
9 / 4.5	42371650	High cross stability, fast-running	1.4401 / 1.4401

The table lists a selection of classic mesh types for this application.

Other types are available on request.





#### Bonding

## Thermal bonding and drying in **double-belt ovens**

In the field of web bonding, process belts from GKD demonstrate their performance in doublebelt dryers, even under extreme soiling conditions. Their tailor-made mesh design, comprising stainless steel, steel, and bronze, or an individual combination thereof, optimizes even the most demanding thermal bonding processes. Offering cross stability in a rugged design, non-marking pin seams and respective edge coatings, they meet the specific expectations of high-performance belts. A magnetic upper belt supports precise calibration. Also possible are synthetic-and-metal or glass-and-metal (hybrid) material combinations for custom designs. Optimum cross stability and running properties – even at high speeds – make them a pioneering solution for successful drying of nonwovens.



Glass hybrid with nonwoven



Count per cm	Article	Special feature	Material
8.45 / 3	42600312	Non-stick, magnetic	Glass, steel / steel
8.45 / 3	42600311	Non-stick, non-magnetic	Glass, steel / 1.4401
3.15 / 3	41600308	Non-stick, magnetic	Glass, steel / steel
3.15 / 3	41600307	Non-stick, non-magnetic	Glass, steel / 1.4401
4.55 / 4.2	41370821	Lightweight, magnetic	1.4401 / steel
4.55 / 3.95	41370821	High cross stability, non-magnetic	1.4401 / 1.4401
6 / 4.5	42590646	Lightweight, magnetic	PPS / steel
6 / 4.5	42590645	Lightweight, non-magnetic	PPS / 1.4401
3.15/3	41250815	Lightweight, magnetic	Bronze / steel
3,.15 / 3	41250817	Lightweight, non-magnetic	Bronze / 1.4401

PPC Duofil with nonwoven

The table lists a selection of the classic mesh types for this application. Other types are available on request.





Double-belt ovens with glass hybrid belts

Glass hybrid belt with non-marking pin seam

#### Bonding

## Non-stick coating of glass hybrid belts

Coated belts, specially developed by GKD, are used as a custom solution when processing product media with strong adhesive forces.

The key advantage lies in the coating of the entire belt. Both the warp strands themselves and the connection points between the warp and weft wires are completely coated. These benefits result in excellent added value for system operators:

- Zero or only very low fiber/binder adhesions on the belts when using BiCo fibers
- Significant extension of the useful life and increase in productivity of the process belts used, due to reduction of soiling and increase in production speeds.



#### Non-marking pin seam



Metal hook seam + PTFE foil



PTFE edge reinforcement

### Sustainable benefits

- High energy efficiency due to lightweight process belt types
- Excellent running properties due to a high degree of cross stability
- Precise calibration & compression due to the absolute flatness of the magnetic upper belts
- Variable & high air flow volumes due to even mesh openings
- **No belt elongations** due to the temperature stability of the fiberglass wires





Single warp glass hybrid belt type

Triple warp glass hybrid belt type

## Bonding

## **Glass hybrid belt types:** Single warp and triple warp mesh designs

GKD first presented the reinforced triple warp mesh design of the glass hybrid belt type at INDEX 2021. Single warp glass hybrid mesh belts from GKD have been successfully established for years in thermal bonding of highly voluminous or heavily compressed products in double-belt ovens. The triple warp mesh design made of stainless steel wires in the weft direction and warp wire bundles of fiberglass and steel strands are also energy-efficient lightweights, making them particularly economic to use. The complete PFA coating of wires, strands, and intersections qualifies the glass hybrid belt types for highly adhesive BiCo nonwovens or those with great shrinking forces.



We recommend additional reinforcement of the seam at the edges



## Hygiene products

# **Production** of hygiene and diaper products

Open-pored GKD process belts are used as the transport medium in manufacturing hygiene products and diapers. The focus is on secure and controlled transport at high production speeds. The process belts with suction from below hold the products securely in position and guarantee a controlled transition to the next production process. These process belts are generally produced with a woven seam (endless for cantilever installation) and anti-static properties. Individual solutions, for example with woven-on pin seam or attached guide elements, are available upon request.



Туре	Material	cfm	Comment
Conductive 1100	PES/PA	1050	30% open area
Linear Screen 800 x 800	PES	890	24% open area
Bronze	No. 18/15 per cm	1210	27% open area
Conductive 7690	PES/PA	690	excellent grip
Trackmatic™ 1601	PES/1.4401	293	pressing belt
Spiral belt SO-6508-1000	PES	1000	conveyor belt

Conductive 1100

The table shows the classic mesh types for this application. Other types are available on request.



Washing / bleaching / drying / impregnating / reinforcing

# **Textile** applications

Beside the classic applications of nonwoven forming and thermal bonding, GKD offers a large number of process belts that can be adapted for various textile applications. Individual solutions that are matched to the specific process and requirements can be developed with our customers. Metal mesh (1/1 weave) with sewn-on pin seam and self-regulating Trackmatic & lightweight Trackmatic belts are used in many systems for impregnation, dewatering, or creation of desired product imprints.

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Туре	Material	Aperture	Open area
Trackmatic™ 1530	1.4401	15.0 x 3.0 mm	59%
Trackmatic™ 1660	1.4401	15.0 x 6.0 mm	66%
Special V-crimp mesh	1.4401 mit FEP	35.0 x 4.0 mm	57.5%
Lightweight Trackmatic™ 4/4	1.4301/1.4401	1.78 x 1.62 mm	42%
Lightweight Trackmatic™ 6/4.5	PPS/1.4401	0.88 x 1.62 mm	37%

The table only shows a small overview of the many versions available. Other types are available on request.

Trackmatic belt with pin seam



## Forming and bonding

## Insulation

Process belts made of metal and synthetic meshes assist the process of manufacturing insulation materials. Whether sheep wool, cellulose fibers, glass fibers, organic, or artificial materials such as polystyrene or mineral fibers – GKD delivers the right fiber belt for the forming and bonding of all conventional insulation materials. Both single- and double-belt air-through ovens can be equipped with these belts. The available spectrum of solutions ranges from anti-static synthetic fabric belts and spiral fabric belts for forming applications to metallic fabric belts for various bonding processes. Belts made of material combinations and spiral fabrics, as well as Trackmatic<sup>™</sup> or PPC duofil<sup>®</sup> belts also form part of the portfolio of GKD process belt solutions.



Туре	Special feature	Material
Metal belts	non-magnetic / magnetic	1.4401 / steel
Duofil <sup>®</sup> belts	non-magnetic / magnetic	PPS / 1.4401 / steel
Trackmatic™ belts	self-guiding belt	1.4401
Spiral belts	unfilled / filled	PES, PPS

The table shows the classic mesh types for this application. Other types are available on request.

Trackmatic



### Forming and bonding

## **Flooring**

GKD process belts made of metal fabric have proven their worth in manufacturing PVC floor coverings and carpets for decades. Potential applications range from drying PVC to fixing dyes in carpet manufacturing. In all of these processes, the conveyor belts must be designed to cope with ever shorter production times, higher temperatures, and the use of chemical substances such as plasticizers. We achieve this by selecting the most suitable alloys and material components. This allows our customers to benefit from GKD conveyor belts that are individually tailored to their respective production requirements.

### Properties

- Suitable material quality (stainless steel, cast steel)
- High degree of cross-stability
- Optimum flatness
- Durable
- Easy belt control
- Optimized for easy cleaning
- High temperature resistance for extremely efficient drying



Туре	Metal belts
Mesh type	7.5/4.9 p.cm
Material	1.4401 / Stahl

7.5 / 4.9 per cm

The table shows the classic mesh types for this application. Other types are available on request.



Trackmatic<sup>™</sup> belt from "inside"</sup>

Trackmatic<sup>™</sup> belt on a roller

Trackmatic™ belt with PES strand

## Special solutions

## **Trackmatic**<sup>™</sup> belts

The Trackmatic<sup>®</sup> process belt (TPB) is a special, self-regulating GKD development. The wires of the mesh (strands) in the direction of rotation are flexible, while the transverse weft wires are rigid and form rows of V-crimps on the bottom side. The rows of V-crimps run in dedicated grooved drive, deflection, and support rollers. Due to guidance of the V-crimps in the grooved rollers, there is no need for belt control.

Request a copy of our special brochure.

TPB type	Aperture	Ø wire mm	Material	Article no.	Kg/m <sup>2</sup>	% open area
1504	15x0.4	2.00/1.50	1.4401	45370400	8.7	19
1508	15x0.8	2.00/1.50	1.4401	45370501	7.4	31
1515	15x1.5	2.00/1.50	1.4401	45371200	5.9	44
1530	15x3	2.00/1.50	1.4401	45372400	4.2	59
1550	15x5	2.00/1.50	1.4401	45373200	3.3	68
1620	15x2	2.00/2.00	1.4401	45371850	7.5	44
1660	15x6	2.00/2.00	1.4401	45374000	4.2	66
1715	15x1.5	2.80/2.01	1.4401	45371220	9.5	36
1740	15x4	2.80/2.00	1.4401	45373145	6.2	56
1820	15x2	2.80/2.50	1.4401	45371885	12.4	37
1860	15x6	2.80/2.50	1.4401	45374015	7.5	59
1505	15x0.5	2.00/1.50	PES/1.4401	45800250	8.7	19
1601	15x0.1	2.00/2.00	PES/1.4401	45800121	12	6.2
1601	15x0.1	2.00/2.00	Kevlar/1.4401	45800123	11.9	6.7

The table only shows a small overview of the many versions available. Other types are available on request.



## Special solutions

## **Spiral belts**

Due to their production process, spiral fabrics do not have a seam and are therefore suitable for more numerous industrial applications than woven fabrics. Spiraled continuous screens are ideal for applications in which a seam would be prone to failure due to mechanical loads. Seamless spiral meshes are therefore commonly used in dewatering processes with fibrous products such as coconut fibers or for sludge dewatering in the paper industry. Spiral screens are often also used in a range of thermal applications, including drying veneers, manufacturing gypsum plasterboard, or for multistage dryers in the food industry. Depending on the intended purpose, these spirals can be made from round or flat wires and have antistatic, dirt-repellent, or enhanced abrasion-resistance properties. Spiral fabrics/spiral belts from GKD are available as filter and dryer screens or as conveyor belts made of polyester or PPS. Application-optimized air permeability rates, tracking stability, a high throughput rate and good separating behavior make the new GKD spiral fabrics ideal for a multitude of applications – whether filled or unfilled.

Article no.	Туре	Ø spiral wire	Ø seam wire	Filler wire	CFM	Material
70561001	SO-6508-1000	0.65 mm	0.80 mm	unfilled	1000	PES
71561001	S13-6508-700	0.65 mm	0.80 mm	3 x 0.70 mm	700	PES
71561003	S20-6508-370	0.65 mm	0.80 mm	1 x 0.69 x 3.05 mm	370	PES
71561002	S12-6508-880	0.65 mm	0.80 mm	2 x 0.70 mm	880	PES
71561004	S14-6508-460	0.65 mm	0.80 mm	4 x 0.70 mm	460	PES
70565401	S0-1010-1100	1.00 mm	1.00 mm	unfilled	1100	PES
71565403	S14-1010-500	1.00 mm	1.00 mm	4 x 0.80 mm	500	PES
71565405	S13-1010-700	1.00 mm	1.00 mm	3 x 0.80 mm	700	PES
71565406	S20-1010-630	1.00 mm	1.00 mm	0.92 x 2.5 mm	630	PES
70562301	S0-7009-1050	0.70 mm	0.90 mm	unfilled	1050	PES
71562301	S13-7009-460	0.70 mm	0.90 mm	3 x 0.80 mm	460	PES
71562302	S20-7009-300	0.70 mm	0.90 mm	0.69 x 3.05 mm	300	PES
70591001	P0-6508-1150	0.65 mm	0.80 mm	unfilled	1150	PPS
71591004	P14-6508-310	0.65 mm	0.80 mm	4 x 0.8 mm	310	PPS

The table only shows a small overview of the many versions available. Other types are available on request.

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Woven spiral pin seam

Endless woven seam



Sewn pin seam

Woven pin seam

M-clipper seam

Spliced loop pin seam

Seams

## **Woven seams** Synthetic / metal

Besides high rotational accuracy, the key technological requirement of process belts is to avoid imprints on the end product. This means that the focus is already on the quality of the customer's product during the design phase and selection of the seam type. GKD offers optimal seam solutions for the various process belt types and technical requirements.









V-profile





Welded edges



V-crimp mesh edge weld

Duofil<sup>®</sup> with edge coating

## Edges

## **Edge treatments** Synthetic / metal

Cleanly deburred, welded or coated edges guarantee the fixing of the weft wires and avoid residue clinging on to product media. An edge with even straightness and thickness is essential for the belt control system to scan cleanly and ensure directional stability at high production speeds.



## Service

## **Belt installation**

Tow-in tools guarantee easy, and most importantly, damage-free fitting of process belts. When working with long or inaccessible systems, they are indispensable. Tow-in tools from GKD are offered as standard and can be used multiple times. Detailed installation instructions allow customers to install the belts in their systems and seal the seams themselves. However, belt installation can also be performed by the global GKD Service.

## Seam sealing instructions and additional seam wires are included with every belt.





## Service

## Technical consulting and 24/7 service hotline worldwide

Besides individual customer consulting, technical service is another GKD strength. A large team of service engineers and technologists is available to help with belt installations and general troubleshooting. We believe that a combination of sales and service is the only way to guarantee the acceptance and success of GKD products.

# **24/7 service** Global hotline

Europe	+49 2421 803 308
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Service und production

## Consistently high and reproducible standards worldwide

To ensure that we can act with more flexibility than other companies in this globalized, economically intertwined world, all subsidiaries work in accordance with the GKD standard. This allows our customers throughout the world to relax in the knowledge that they can always rely on the consistently high quality of all GKD products. In addition, the standard stipulates responsible occupational safety and sustainable environmental protection, constant cost optimization, and protection of all resources. The GKD standard is based on seamless product and process control. This starts with complete checks of input materials arriving at our facility and does not end until we have received feedback that all products comply with the required properties in industrial use. We also develop individual inspection plans in close consultation with our customers as needed.

## Certifications

ISO 14001 : 2015 ISO 9001 : 2015 ISO 50001 : 2011 OHSAS 18001 : 2007



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