

# Technical Textiles

The expert for technical applications



**Gütermann**  
it's the thread that makes the seam



# Safety

The expert for seams in automotive and aircraft construction



**A**IRBAGS, SEATBELTS, SEATS, CLADDING AND INSULATION – GÜTERMANN HAS THE TECHNICAL SEWING SOLUTIONS FOR TEXTILE APPLICATIONS IN THE AUTOMOBILE AND AIRCRAFT CONSTRUCTION INDUSTRIES.





*Small picture, top: The airbag has to hold out. Not only in crash tests, but also over the years. So that it still works when you need it.*

*Small picture, left: Just one of many applications for Gütermann threads – aeroplane seats.*

## Airbags

In serious cases, airbags can be life-savers. In order to guarantee maximum safety, the seams must be perfect, because it is the seams in particular that are placed under strain. The thread must be strong, flexible and have a melting point high enough to resist the extreme temperatures that occur briefly as the airbag inflates. Threads like the ones Gütermann makes: Super Nylon, NOMEX® and CONEX®.

The Gütermann solution:

- Gütermann G 1503/Oxcel HT, super Nylon made of PA 4.6, with an ideal melting point of 285 °C (545 °F), a breaking strength of about 9.500 cN and elongation at break of about 30 %

## Car and aeroplane seats

Hardly anything is subjected continuously to such heavy strain and, above all, over such long periods of time as the seats in cars, buses and aeroplanes. Also many types of linings and materials are used in seat construction.

To achieve the best possible sewing properties on a wide range of different sewing machines and to ensure the durability of the finished seams are the most important factors. To achieve the perfect seam for the entire life of a car.

The Gütermann solutions:

- Zwilon/Zwibond 40
- Zwilon/Zwibond 20
- Tera 40 and Tera 20

## Sound and temperature insulating materials

Many different textiles are used in cars and aeroplanes for special technical applications. For example as sound insulation materials for the engine compartment of vehicles or as insulation in aeroplanes. Every material used in this way is an important functional element that has to meet the general safety requirements, as only then can it actually make a contribution towards improving safety. The most common requirements for fabrics here are resistance to temperature and chemicals and tearing and abrasion resistance. And the same applies to the thread. Like the meta-aramid threads made by Gütermann.

The Gütermann solutions:

- For high-temperature areas: Gütermann L 753 – No. 40 and Gütermann L 1503 – No. 20
- Tera 40 and Tera 20 and Zwilon/Zwibond 40 and 20 also withstand temperatures up to nearly 200 °C (390 °F)



# Protection

The expert for protective clothing

**T**HERE ARE LOTS OF JOBS WHERE NOT ONLY SKILLS AND TECHNIQUES ARE IMPORTANT, BUT ALSO THE THREADS THAT HOLD EVERYTHING TOGETHER. IN FACT, THIS IS ALWAYS THE CASE WHEN THE WORK CALLS FOR SPECIAL PROTECTIVE CLOTHING.

## Fireproof clothing

Nowhere is the importance of high-performance protective clothing more obvious than in cases of fire. Because knowledge about potential risks and the use of innovative textile techniques is growing, fireproof clothing is now fulfilling higher and higher standards. The same applies for the seams in these garments, for it is especially here – at the seams – that fire, heat and any released chemicals are applied. And it is exactly here that Gütermann has applied itself to finding a solution: with threads made of meta-aramid, which do not ignite but glow, and extinguish automatically when removed from the source of fire. These are threads that do not burn, can resist high temperatures for a period of time, and are proven to have excellent resistance to alkaline media.

The Gütermann solutions:

- Gütermann K, NOMEX® and K AR, CONEX®, 100 % meta-aramid thread, very high breakage resistance, very good resistance to chemicals, do not melt, and can withstand temperatures of up to 360 °C (680 °F), for short periods
- Gütermann K 403 – No. 70
- Gütermann K 403 AR – No. 70
- Gütermann K 753 – No. 40
- Gütermann K 753 AR – No. 40



*Small picture, top: Many professions can only be carried out with special work clothes. Gütermann provides the threads that meet the necessary requirements here.*

*Small picture, bottom: fire, heat, smoke and gas – when things really hot up, protective clothing has to be absolutely reliable. And that includes the seams.*



## Protective work clothing

There is work clothing developed specially for fire protection, but there are also many other work situations in which clothing has to be equipped for the event of a fire breaking out. For example, protective suits for welders or flying suits for pilots and overalls for racing drivers. This sector also includes garments for off-shore oilrig workers, clothing and working clothes for the police, and special equipment like bullet-proof jackets. Meta-aramid threads by Gütermann are the ideal solution in all these cases. They optimise protection exactly in the areas where protective work garments are most sensitive: at the seams.



# Environment

The expert for energy and filter technology

**E**VERY CONTRIBUTION WE CAN MAKE TOWARDS SAVING ENERGY AND LOWERING EMISSIONS IS AN IMPORTANT ONE. EVEN SUCH AN INCONSPICUOUS DETAIL AS A THREAD. THREADS BY GÜTERMANN MEET THE HIGHEST STANDARDS. BECAUSE THEY DO EXACTLY WHAT THEY ARE DESIGNED TO DO: WITHSTAND EXTREME CHEMICAL OR MECHANICAL DURESS.

## Wet and dry filtration

In the last few years, we have become more aware of how valuable nature is. The aim of industry is to be as environmentally friendly in production as possible. This applies in particular for industrial wet and dry filtration. Filtration materials should be acid and alkali-proof and resistant to rot and high temperatures. The special sewing threads by Gütermann are suitable for both wet and dry filtration and make an active contribution to environmental protection. They are made of raw materials that can be matched to the raw material of the filter fabric, and have a high breakage resistance of more than 3.200 cN. Other special sewing threads made of meta-aramid, polyester and Nylon 6.6 are also available.

The Gütermann solutions:

- Polyacrylic No. 30, Dolanit®, heat resistant in continuous use up to 140 °C (280 °F), very good resistance to chemicals and rot
- Polypropylene No. 40, high acid and alkali resistance, high wet strength with minimal moisture absorbency, melting point at approx. 170 °C (340 °F)
- For filtration of hot media: Gütermann L 753 – No. 40, Gütermann L 1503 – No. 20 and Gütermann K 753 – No. 40
- For dust filtration, Tera 40, 20, 10 and Zwilon/Zwibond 40, 20 and 13 are ideal, depending on the filter material used



*Small pictures, bottom: insulation and filter materials for energy technology and industrial applications are becoming increasingly important in this age of climatic and environmental protection.*

## Pipe and valve insulation

The insulation of pipes and valves is very important when it comes to saving energy through heat insulation. Wherever sewn insulation jackets are used, Gütermann is there with a convincing solution. With threads that are temperature and moisture resistant, and therefore last longer because they can hold out for longer.

The Gütermann solutions:

- Zwilon/Zwibond in sizes 40, 20 and 13
- Gütermann Tera in sizes 40, 30 and 20



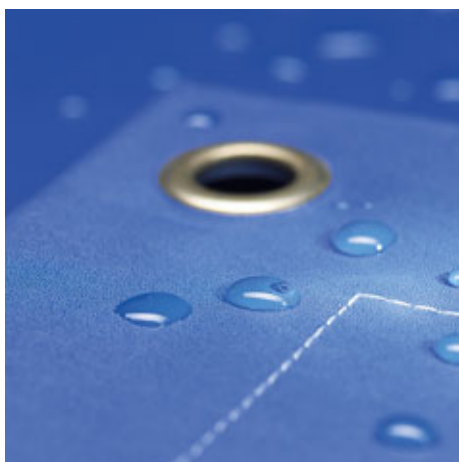
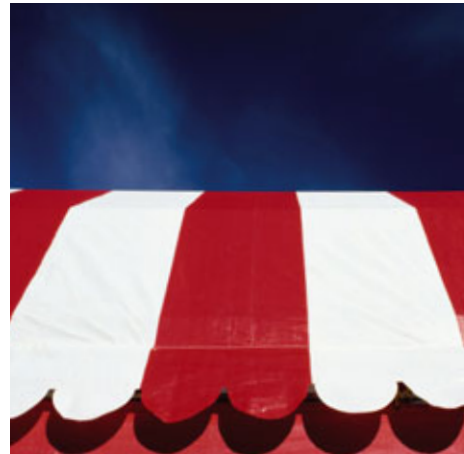


# Weather resistance

The expert for functional textiles

**T**HE CHANGING CLIMATIC CONDITIONS ARE A TOUGH CHALLENGE FOR OUTDOOR TEXTILES. GÜTERMANN HAS THE RIGHT THREADS FOR SEAMS THAT LAST FOR YEARS AND GUARANTEE THAT APPLICATIONS FUNCTION PROPERLY.

*Small pictures, right/bottom: Snow, sun and wind tell heavily on tents, awnings and sails – day in, day out. The seams are placed under the most strain, and it is the thread that has to withstand it.*



## Parachutes and hot air balloons

There are some seams that absolutely have to hold – not only for visual effect or simply for functional reasons, but because sometimes people’s lives really do hang by a thread – literally! We are talking here about threads used in the production of parachutes and hot air balloons. While breakage-resistant twists are absolutely adequate for use in parachutes, wherever seams come into contact with the heat of the gas flame in a hot air balloon, meta-aramid sewing threads that are resistant to high temperatures are the problem solvers.

The Gütermann solutions:

- ZwiBond in sizes 40, 20 and 13 for parachutes
- Gütermann L 753 – No. 40 and Gütermann L 1503 – No. 20 for hot air balloons

## Awnings and sun shades

An awning is exposed to the wind and weather 365 days a year. It has to withstand extreme temperature fluctuations, and has to withstand sun and rain, snow and ice – for years and years. Tents, awnings and sails are subjected to similarly high levels of strain. The same applies for all these textiles – that they must be resistant to UV light, acid rain and the gases in our environment like ozone and nitrogen oxide. And that also goes for the threads used to sew them, which also have to be strong enough to withstand high physical strain. Gütermann offers a special, extremely highly resistant sewing thread made of polytetrafluorethylene (PTFE) for this purpose. It guarantees that the function of these outdoor textiles is maintained for many years.

The Gütermann solution:

- Profilen® HE – No. 30 made of PTFE: best possible resistance to UV rays, very high chemical resistance (e. g. to acid rain), good sewability



## Gütermann solutions at a glance:

In any situation where technical textiles are used, a great deal depends on the thread. Of course, it is best if the thread is made by Gütermann. Because these even hold out under the most difficult conditions. Especially when things start getting hot, or it is important to fulfil high chemical or climatic requirements. And because our threads are available in a wide range of different thicknesses, we can offer you the expert you need in every single case.

Automotive/aircraft construction	Special features	Gütermann solution
Airbags	Melting point 285 °C	Gütermann G 1503/ Oxcel HT
Car/aeroplane seats		Zwilon/Zwibond 40 Zwilon/Zwibond 20 Tera 40 und Tera 20
Sound and temperature insulation	For high temperature ranges	Gütermann L 753 – No. 40 Gütermann L 1503 – No. 20
	Withstands temperatures up to 200 °C	Tera 40 and Tera 20 Zwilon/Zwibond 40 and 20

Protective work clothing	Special features	Gütermann solution
Fire-proof/protective work clothing	Heat resistant up to 360°C	Gütermann K 403 – No. 70
	m-aramid threads	Gütermann K 403 AR – No. 70
	NOMEX® and CONEX®	Gütermann K 753 – No. 40
		Gütermann K 735 AR – No. 40

Energy/filter technology	Special features	Gütermann solution
Wet/dry filtration	High resistance to chemicals	Polyacrylic No. 30, Dolanit®
		Polypropylene No. 40
For filtration of hot media	m-aramid threads NOMEX® und CONEX®	Gütermann L 753 – No. 40
		Gütermann L 1503 – No. 20
		Gütermann K 753 – No. 40
Dust filtration	depending on the filter material used	Zwilon/Zwibond 40, 20 and 13 Tera 40, 20 and 10
Pipe/valve insulation		Zwilon/Zwibond 40, 20 and 13 Tera 40, 30 and 20

Functional textiles	Special features	Gütermann solution
Awnings/sun-shades	UV resistant	Profilen® HE – No. 30
Parachutes		Zwibond 40, 20 and 13
Hot air balloons	Heat resistant up to 360 °C: m-aramid thread NOMEX®	Gütermann L 753 – No. 40 Gütermann L 1503 – No. 20



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