AMANN
GROUP

techX performance threads.





techtex

intelligent threads.

amann group.

For more than 160 years, AMANN has been one of the global leaders in the field of high-quality sewing and embroidery threads. From universal sewing threads to special high-tech threads, AMANN offers a wide range of threads for all sewing and embroidery applications. Each product requires very specific thread properties – which are often not featured by off-the-shelf products. As a global player and technological leader, AMANN counts on intelligent products, individual solutions and innovative concepts.

AMANN's sewing and embroidery threads – intelligent. individual. innovative.
The combination of carefully selected high quality raw yarns and processing skills that have been acquired in more than 160 years of sewing and embroidery thread production guarantee the outstanding performance profile of AMANN's products.

Ideally balanced thread twist and elongation level, highest possible thread strength level, highly consistent thread finish in combination with a perfectly adjusted precision winding process guarantee our customers the best sewing and processing performance resulting in higher production efficiency and reduced scrap rates.

AMANN's sewing threads: Best performance for our customers – any time at any place.

AMANN's Code of Sustainability – maximum compliance through minimum environmental impact.
Dealing with the environment and its resources responsibly and sustainably is an important aspect of AMANN Group's corporate activity. This is documented by Augsburg's production site's certification in accordance with DIN EN ISO 14001 environmental management system as well as with DIN 50001 energy management system.

All AMANN sewing and embroidery threads including finishing consist only of non-hazardous materials and substances with no risk for people and environment. Compliance with REACh and certification under Oeko-Tex Standard 100 guarantee that AMANN's products are not harmful.

performance profile.

Reliability.
Based on its vast expertise in the production of sewing and embroidery threads, AMANN has been serving the global textile industry and its suppliers for many decades. With expert product solutions from fashion to technical applications, AMANN has become an integral part of this industry.

International Sales Team.
More than 1,680 motivated employees and a global sales network with a comprehensive understanding of the nature of the processes in production plants guarantee successful support and quick response regarding all business related aspects.

Quality Management.
Living up to our high quality standards at any time is a core point of AMANN's corporate philosophy. The entire group has been certified in accordance with DIN EN ISO 9001. Fulfilment of our process-oriented quality commitment for a safe production environment is proven by our Augsburg production site's certification under the strict ISO/TS 16949 standards.

Technical Advisory.
Providing excellent technical and processing support is one of the key strengths of AMANN. Technical sewing and embroidery advisory services include on-site training courses, technical workshops, customised tests as well as product and processing recommendations.

Technical Competence.
In the arena of technical textiles, there are special requirements regarding the involved components. In this field, AMANN's technically oriented product range provides the perfect solution for different applications. One of AMANN's core competencies is the finishing and surface treatment (lubrication and bonding) of yarns and threads. Hence, it is possible to develop and offer products, which are ideally suited to the further processes, for example in the complex field of fibre composite materials.

Logistics & Warehousing.
Producing threads for the global textile industry, shipping and warehousing are part of our daily business. Just-in-time delivery, flexibility in meeting the changing customer requirements and efficient logistics management with a huge range of products – this is what AMANN stands for.

Special sewing threads for technical applications.

All over the world technical textiles are gaining more relevance. They provide high-tech solutions, replacing more traditional materials and can be bonded with other materials for new combinations. Whether our threads are required for textile construction, the industrial or apparel sector – technical textiles are always high-tech, innovative products with special physical, chemical and application-technical characteristics. Their development is shaped by demanding requirement profiles, and for security-related applications by norms, specifications and directives. Their functionality must also be reflected in the seams.

The seam is an essential feature within technical textiles. It provides a flexible and secure connection for the manufacture of complex two or three dimensional products. Embroidery technology is also utilised for technical textiles, for example in the production of fibre composite materials.

Whether sewn, embroidered or woven, sewing threads inserted into the textile material must maintain or fulfil the function and the sometimes very demanding requirements of the entire product. For this, special sewing threads are frequently required. AMANN's technically oriented product range offers such solutions, i.a. for protective clothing, outdoor and solar textiles, filter and clean room technology, geo-textiles, composites and many more.

AMANN is a specialist in this field and our extensive range of techX PERFORMANCE THREADS offers the perfect solution for every complex requirement.

Flame and heat protection.

Special sewing threads for protective clothing and other heat protection applications.

Flame and heat protection is required in the most varied applications. The challenge is protecting the wearer and environment from life threatening situations involving fire and heat. The manufacturing of heat protective clothing is tightly controlled by norms, regulations and partly by individual product specifications. In general, those norms and specifications do not actually specify the sewing thread to be used. The test parameters refer to the complete item of clothing; the threads are examined as a whole. The seams have to fulfil the same requirements in the test as the garment fabric. This means that in the limited flame spread test method the seams are exposed to the flame as well.

When the seams are on the inside and therefore protected from direct heat transmission or an open flame source, AMANN threads from our standard product range such as saba^c or Rasant can be used. Generally speaking, the manufacturing of heat protective textiles does not necessarily have to involve special sewing threads. Should specified test standards allow the application of conventional sewing threads, then for the sake of economy and a more varied choice of colours, this may be an option.

The manufacturing of heat protective textiles usually requires the application of special sewing threads to fulfil temperature resistance requirements. For this purpose, sewing threads made from meta or para-aramids are proven products. They neither burn nor melt and carbonize or decompose only after a long exposure to high temperatures. After the seat of the fire source, they are self-extinguishing. Aramide sewing threads thus constitute an essential part of the many specifications and regulations for the production of heat protective clothing for the military, police, fire brigade and many other profession sectors. They enable raw material uniformity of sewing thread and sewn material. Therefore, the entire garment fulfils the function profile.

AMANN's technically oriented product range offers the subsequent solutions.

protech
indutech
sporttech
mobiltech

protech
indutech
buildtech
mobiltech
agrotech
medtech
sporttech
oekotech
geotech
packtech

N-tech

Nomex® DuPont™ meta-aramide, schappe spun

- high-performance Nomex® special sewing thread
- for flame retardant and heat protective applications
- self-extinguishing and non-melting
- permanent temperature resistance up to approx. 200°C
- decomposition temperature at approx. 370°C

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
N-tech	40	75	Nm 100–120	3.000 m Co	15
	70	40	Nm 80–100	1.000 m XW	15
				5.000 m Co	

Main application:

- **Protech:** heat protective clothing, protective gloves
- **Indutech:** hot-gas filtration, cable isolation
- **Sporttech:** racewear
- **Mobiltech:** airplane seats, aerospace

Further applications:
Automotive:

- airbags
- trim/interior

Embroidery:

- flame retardant embroidery

Home interior:

- flame retardant textiles

N-tech CS

Nomex® DuPont™ meta-aramide, cut staple spun

- Nomex® special sewing thread for flame retardant and heat protective applications
- self-extinguishing and non-melting
- permanent temperature resistance up to approx. 200°C
- decomposition temperature at approx. 370°C

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
N-tech CS	70	40	Nm 80–100	1.000 m XW	15
				5.000 m Co	
	80/2	25	Nm 70–90	5.000 m Co	5

Main application:

- **Protech:** heat protective clothing, protective gloves
- **Indutech:** hot-gas filtration, cable isolation
- **Sporttech:** racewear
- **Mobiltech:** airplane seats, aerospace

Further applications:
Embroidery:

- flame retardant embroidery

Home interior:

- flame retardant textiles

Co = FS/KS = XW =

A-tech CS

NEWSTAR® Yantai meta-aramide, cut staple spun

- meta-aramide special sewing thread for flame retardant and heat protective applications
- self-extinguishing and non-melting
- the powerful alternative to Nomex®
- permanent temperature resistance up to approx. 200°C
- decomposition temperature at approx. 370°C

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
A-tech CS	40	75	Nm 100–120	3.000 m Co	11
	70	40	Nm 80–100	5.000 m Co	11

Main application:

- **Protech:** heat protective clothing, protective gloves
- **Indutech:** hot-gas filtration
- **Sporttech:** racewear
- **Mobiltech:** airplane seats, aerospace

Further applications:
Embroidery:

- flame retardant embroidery

Home interior:

- flame retardant textiles

Nc-tech

Nomex® DuPont™ meta-aramide continuous filament

- Nomex® special sewing thread for highest requirements in flame retardant and heat protective applications
- self-extinguishing and non-melting
- robust and extremely durable
- permanent temperature resistance up to approx. 200°C
- decomposition temperature at approx. 370°C

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Nc-tech	20	140	Nm 120–140	1.000 m FS	5
	34	95	Nm 120–130	1.500 m FS	5
	40	70	Nm 110–130	2.000 m FS	5
	60	45	Nm 100–120	3.000 m FS	5

Main application:

- **Protech:** heat protective clothing, protective gloves, heavy-duty safety shoes
- **Sporttech:** racewear
- **Mobiltech:** airplane seats

Further applications:
Automotive:

- airbags

General Information: The mentioned permanent temperature resistance is a function of time, temperature and environment.

techX PERFORMANCE THREADS

K-tech

Kevlar® DuPont™ para-aramide, schappe spun

- Kevlar® special sewing thread for applications with high requirements on cut, flame and heat protection
- permanent temperature resistance up to approx. 170°C
- decomposition temperature at approx. 425°C

Main application:

- **Protech:** heat protective clothing, protective gloves, bullet-proof vests, lumbermen's trousers

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
K-tech	35	80	Nm 120–140	3.000 m Co	1
	50	60	Nm 110–130	3.000 m Co	1
	75	40	Nm 100–120	5.000 m Co	1

Kc-tech

Kevlar® DuPont™ para-aramide continuous filament, bonded

- extremely high-performing Kevlar® special sewing thread for technical textiles requiring cut and heat protection
- self-extinguishing and non-melting
- permanent temperature resistance up to approx. 170°C
- decomposition temperature at approx. 425°C

Main application:

- **Protech:** protective clothing, safety shoes, bullet-proof vests
- **Mobiltech:** tyres
- **Indutech:** filters, composites

Further applications:
Automotive:

- airbags

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Kc-tech	22	135	Nm 130–150	ca. 500 g / 3.000 m FS	1

When processing K-tech and Kc-tech, the thread cutter must be switched off. The thread cutter is not able to cut para-aramide sewing threads cleanly. Furthermore, the cutter would also be damaged after a short time. No wonder that fabrics made from para-aramids are used for items with cut protection characteristics.

Co = FS/KS = XW =

UV light protection and Weatherproofing.
Special sewing threads for outdoor applications.

Sun, wind and rain put outdoor textiles under a lot of environmental stress, which is often underestimated. The different climatic influences – UV rays, moisture, acid rain or airborne substances as well as ozone, nitrogen oxide or dirt – show that there is a need for products with technical characteristics that remain unchanged after many years of being exposed to these factors.

Gore™ Tenara® sewing threads offer excellent UV light and weather-proofing characteristics as well as a high-tech performance profile against abrasion and tensile stress. Even long exposure to sunlight and mechanical stress do not reduce seam quality. The breaking strength and the visual aspect and colour of the seam remain constant under the hardest environmental conditions. These compelling raw material characteristics are expressed in the product guarantee: Gore™ guarantees 15 years of seam stability.

Conventional polyester sewing threads can only partly fulfil these requirements. Polyester sewing threads such as Serafil, and particularly the WR-finish (water-repellent), can be applied for outdoor textiles that will be exposed to minimal and only temporary stress conditions. It is not recommended to utilise polyester sewing threads when they are to be subject to extreme weather conditions.

In individual cases the sewing thread choice must match the environmental influences the thread will face. AMANN' s sewing advisory can offer advice on this topic.

GORE Tenara SEWING THREAD

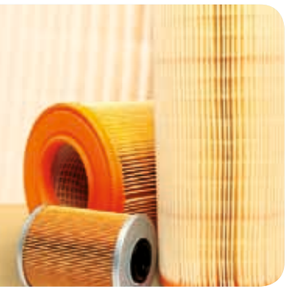
ePTFE (expanded polytetrafluorethylene) tape

- special sewing thread with excellent UV and weather protection (15 years warranty)
- high tensile strength and abrasion resistance
- unaffected by chlorine bleach and cleaning solutions
- remains flexible even in extremes of temperature or frost
- resists mildew, rot and decay
- Application examples: sails and sail covers, boat covers, artificial turf, bouncy castles, outdoor upholstery, awnings and sunblinds, tarpaulins, tents, landscaping and gardening, plane covers and convertible soft tops

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Gore™ Tenara®	HTR	270	Nm 110–140	1.050 m FS	8
	TR	150	Nm 100–120	1.750 m FS	10
	LTR	110	Nm 90–110	2.100 m FS	1

Processing recommendations for Tenara® sewing threads are available in a separate brochure.

General Information: The mentioned permanent temperature resistance is a function of time, temperature and environment.



Chemical protection.

Special sewing threads for chemical protective clothing.

Technical textiles can be exposed to very different chemical influences. Therefore seams also have to be resistant to those influences and must keep their characteristics over a long induction period. The seams have to fulfil the same requirements as the fabric it is being processed with. Ideally the thread and fabric raw material is uniform.

Industrial filtration is a typical application example. Textile filters have to fulfil the most varied chemical resistance requirements depending on the method and on the filtrate (wet or dry filtration, hot-gas or liquid-gas filtration).

The requirement profile for chemical protection equipment is just as complex. The manufacturing of chemical protective gear as part of PPE (Personal Protective Equipment) is tightly controlled and regulated by numerous norms, provisions and directives. In general, those do not include explicit specifications concerning sewing threads. Depending on the chemical protection type, tests are conducted on samples without seams or, as for heat protective clothing, on the whole garment. If for example chemical permeability is tested on the whole garment (modified spray test EN 468), then the seams naturally receive the stress test as well. Chemical protective clothing is often strengthened with seam tapes to ensure no chemical penetration at the seams.

Where the thread does not come into direct contact with chemicals, then AMANN threads from our standard product range such as saba^{c}, Serafil or Rasant may be utilised. Generally speaking, the manufacturing of chemical protective clothing does not necessarily have to involve special threads. Should specified test standards allow the application of conventional sewing threads, then for the sake of economy and a more varied choice of colours, this may be an option.

AMANN's technically oriented product range offers the subsequent solutions for the extreme chemical protection requirements in filtration and protective clothing.

indutech

protech

techX PERFORMANCE THREADS

D-tech

Dolanit® polyacryl, cut staple spun

- Dolanit® special sewing thread for filtration applications
- high resistance to bases and acids
- permanent temperature resistance up to approx. 125°C

Main application:

- **Indutech:** filtration (dedusting)

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
D-tech	30	105	Nm 110–130	3.000 m Co	1

PP-tech

Polypropylene continuous filament

- special sewing thread for the filter industry
- high resistance to chemicals

Main application:

- **Indutech:** filters for wet filtration, solid-liquid separation

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
PP-tech	40	85	Nm 120–140	3.250 m FS	1

Zyex®

PEEK (Polyetheretherketone) continuous filament

- special sewing thread for the production of chemical protective clothing
- excellent resistance to bases and acids
- extremely durable under mechanical wear
- permanent temperature resistance up to approx. 250°C
- melting point at approx. 330°C

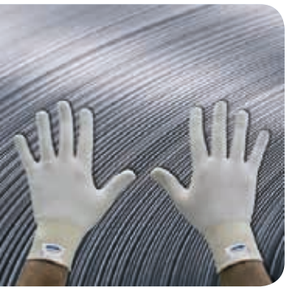
Main application:

- **Protech:** chemical protective clothing
- **Indutech:** filters, solid-liquid separation, composites

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Zyex®	24	125	Nm 120–140	3.000 m FS	1

General Information: The mentioned permanent temperature resistance is a function of time, temperature and environment.

Co = FS/KS = XW =



Special sewing threads for protective textiles to divert static electricity.

Electrostatic charging can be a result of technical processes and technological motion sequences (e.g. friction of machine parts) and significantly compromise security. There is a danger that if the electrostatic charges are high, spontaneous discharging occurs and leads to disturbances in systems or electrical devices/ components. In explosive environments this can present an ignition source. The work environment in the pharmaceutical, semi-conductor and electronics industry, in artificial materials processing, in coating and painting facilities and in bio-technology institutes often require protective clothing to prevent static electricity sparks. The manufacturing of these clothes, also referred to as ESD (Electric Static Discharge) clothing, is precisely specified being a part of PPE.

AMANN's technically oriented product range offers the subsequent special sewing threads for electrostatically conductive applications.

protech

indutech

C-tech

Polyester continuous filament / Belltron® B31

- special sewing thread with a carbon component for dispersion and decaying of electrical or static charges, for example protective clothing in accordance with EN 61340-5-1

Main application:

- **Protech:** clean room garments or safety clothing. e.g. in the fields of micro electronics or pharmacy

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
C-tech	80	35	Nm 80–100	4.000 m FS	1

I-tech

Polyamide continuous filament/ Bekitex® polyester-stainless steel spun

- special sewing thread with an inox component
- for sewing applications requiring conductivity with respect to electrical current, for example safety shoes

Main application:

- **Protech:** safety shoes
- **Indutech:** filters

Further applications:
Emboidery:

- technical embroidery discharging electrostatic energy

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
I-tech	20	125	Nm 110–130	2.000 m FS	1

Co = FS/KS = XW =

C-tech/I-tech.

Seams of C-tech and I-tech provide a conductive bond at the interface of two clothing pieces, and therefore complete the circuit required. In this manner the protectionn and conductive function is fulfilled for the whole garment, despite seam discontinuation. Conventional sewing threads cannot fulfil these requirements. Sewing thread and surface raw material uniformity is effectively secured with C-tech and I-tech threads.

Electrically conductive and antimicrobial special sewing and embroidery threads.

indutech

medtech

Sewing and embroidering can create conductive structures in textiles, which can be applied in the textile industry as well as in electrical engineering and in microsystems technology. Seams and surfaces made of conductive yarns are used in intelligent textiles such as sensors. AMANN offers for this purpose the special sewing thread Silver-tech.
Due to the silver content, Silver-tech can be applied in another area: The antimicrobial characteristic of the silver component prevents the growth of bacteria in the seam and is therefore used in textiles for healthcare.

Silver-tech

Polyester continuous filament/ Silver coated polyamide continuous filament

- special sewing and embroidery thread with a silver coating
- for conductive seams and surfaces
- or seam positions that require antimicrobial characteristics

Main application:

- **Indutech:** smart textiles, sensors
- **Medtech:** hospital clothing, bed linen

Further applications:
Embroidery:

- smart textiles

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Silver-tech	120	28	Nm 75-90	2.500 m FS	1

General Information: The mentioned permanent temperature resistance is a function of time, temperature and environment.

products and applications.

Further technical special sewing threads.

Thread follows function. According to this principle, AMANN's product range offers other special sewing threads. Whether for the growing market of fibre composite materials, for the manufacturing of sails, for lifting and restraint systems, or special protective clothing: AMANN offers customised sewing threads, which are aligned with ever new requirement profiles of technical textiles.

protech
packtech
sporttech
buildtech
mobiltech

techX PERFORMANCE THREADS

Serabond

Polyester continuous filament, bonded

- bonded special sewing thread for sails and other outdoor applications
- resistant to untwisting and therefore suited for multidirectional sewing
- extremely durable and with high UV resistance

Main application:

- **Protech:** safety shoes
- **Sporttech:** sails
- **Buildtech:** boat covers/tarpaulins

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Serabond	20	135	Nm 120–140	2.000 m FS	6
	30	90	Nm 110–130	3.000 m FS	6
	40	70	Nm 90–120	4.000 m FS	6

Xtreme-tech with Dyneema®

Dyneema® by DSM, HPPE (High Performance Polyethylene) continuous filament, bonded

- high-tenacity special sewing thread made from Dyneema®
- maximum strength at minimum weight: 15 times stronger than steel
- high resistance to UV-light, chemicals and water
- extremely abrasion resistant
- maximum strength can be reached in combination with fabric made from Dyneema®

Main application:

- **Packtech:** lifting and restraint systems, fishing nets
- **Mobiltech:** freight containers
- **Sporttech:** climbing gear, hang gliders
- **Protech:** safety shoes, safety gloves

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Xtreme-tech with Dyneema®	20	150	Nm 160	1.500 m FS	7
	40	65	Nm 110–130	3.000 m FS	7

Rasant IR

Polyester/cotton core spun

- Special sewing thread with IR finish is able to absorb infrared radiation

Hauptanwendung:

- **Protech:** Military and police clothing

Product	Ticket no.	Tex no.	Needle size	Make-up	No. of colours
Rasant IR	35	80	Nm 110–130	3.000 m Co	1
	75	40	Nm 90–100	1.000 m XW	1

Co = FS = XW =

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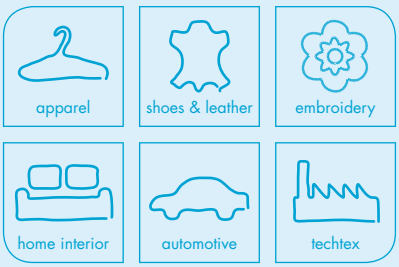
intelligent threads.



Our management systems are certified according to

TÜVRheinland® CERT ISO 9001 ISO/TS 16949

TÜVRheinland® CERT ISO 14001

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