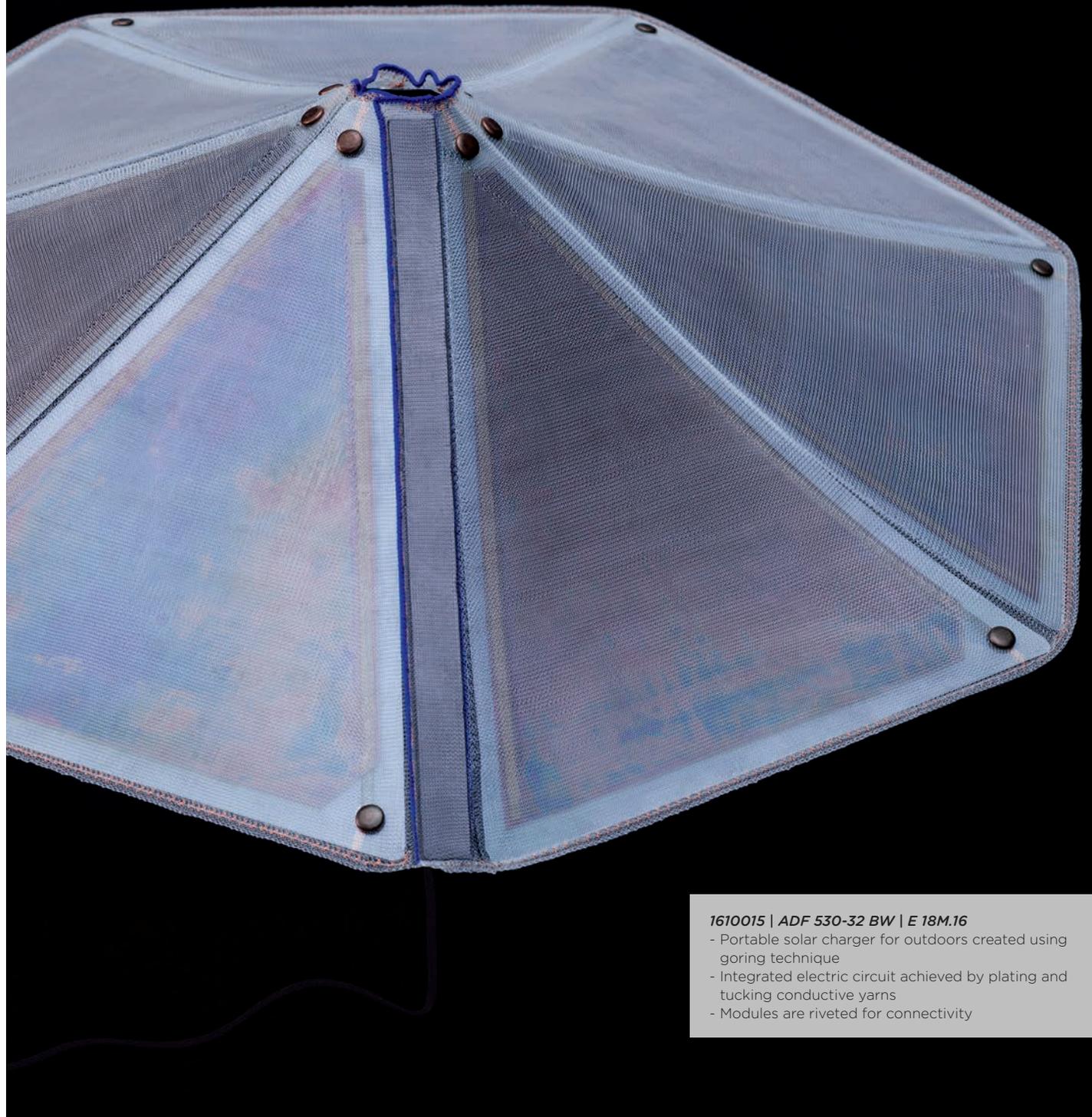


STOLL

TECHNICAL TEXTILES

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**1610015 | ADF 530-32 BW | E 18M.16**  
- Portable solar charger for outdoors created using goring technique  
- Integrated electric circuit achieved by plating and tucking conductive yarns  
- Modules are riveted for connectivity

# CREATE YOUR FUTURE WITH MODERN FLAT KNITTING TECHNOLOGY

**Get to know STOLL, where versatility meets efficiency. Here, applications and machine technologies are developed to create a wide range of products using new and function-specific materials and techniques.**

STOLL has a history of more than 145 years in building flat knitting machines and has proven itself as a leading creator when it comes to new trends and product implementations in fashion and technical applications.

STOLL combines the abilities of smart and highly productive flat knitting machine technology with the innovative textile functions of tomorrow. Encounter the space for new ideas and enjoy the option of knitting in both two and three dimensions. New technical application opportunities are created. Knit fabric solutions combine form and functionality in one piece.



# IN PEAK FORM TO PERFORM

**STOLL's future-orientated flat knitting technology enables the perfect combination of different knitting techniques, functional materials, and fitting forms.**

With innovative technology from STOLL, a wide range of different products can be realized with high potential for technical and economic feasibility.



# FUNCTION

Since the advent of the innovative STOLL ADF machine technology, numerous function-adding techniques have been introduced. Special features can be applied for selected function results.

## 1. Influencing tensile parameters and fabric characteristics such as breathability, 3-D cushioning, and selective stretch

- Functional techniques in plating and intarsia allow precise material use in zones and additional material combinations
- Integration of multiple weft-inlay options
- Placing of ends as warp threads for reinforcement lengthwise



Partial weft inlay for fabric strengthening.

## 2. Combining fabric structures

- Transition of solid structures with open-mesh or spacer-type fabrics
- Linking options to ensure seamless designs



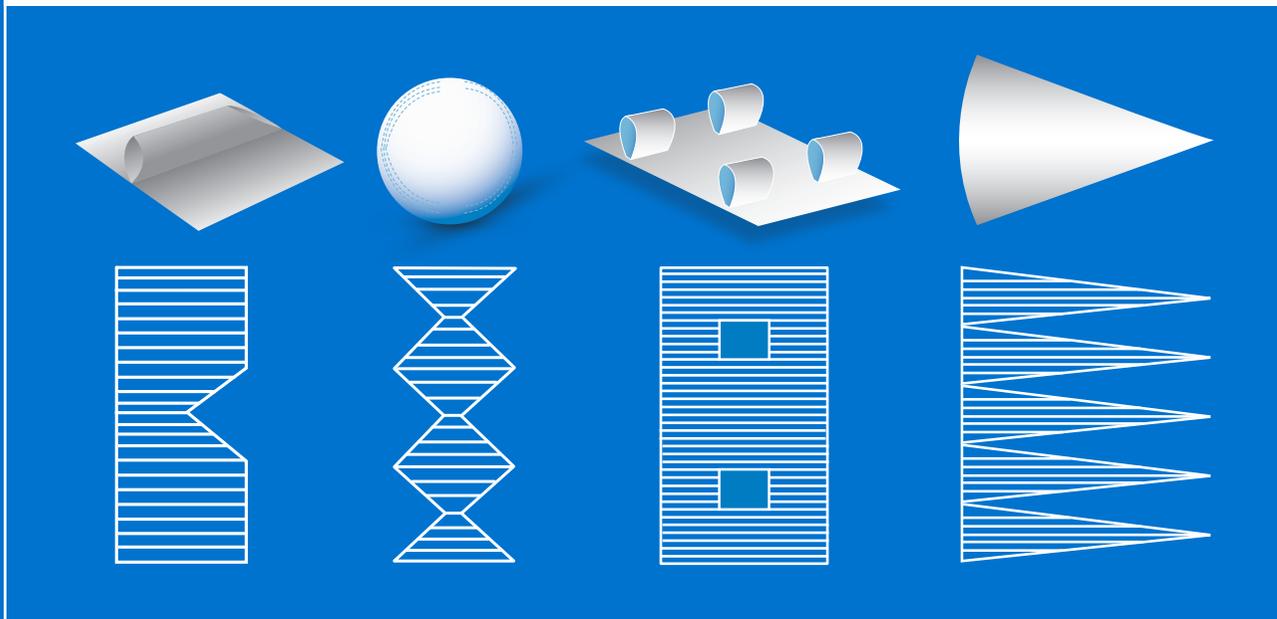
Combination of mesh with filler fabrics.

# FORM

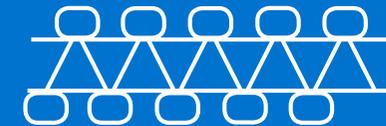
Alongside standard yarded goods in an endless or piece-chained production mode, STOLL flat knitting technology is perfectly designed for generating knit-to-shape products, allowing flat fabric sections combined with tubular zones and circular-shaped

fabric solutions, either straight or curved, as well as spherical-shaped fabric sections integrated into the knit designs, allowing product shaping and fit adaptation.

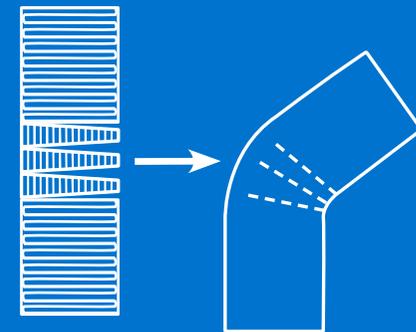
## GORING TECHNIQUES



## SPACER/FILLER FABRICS



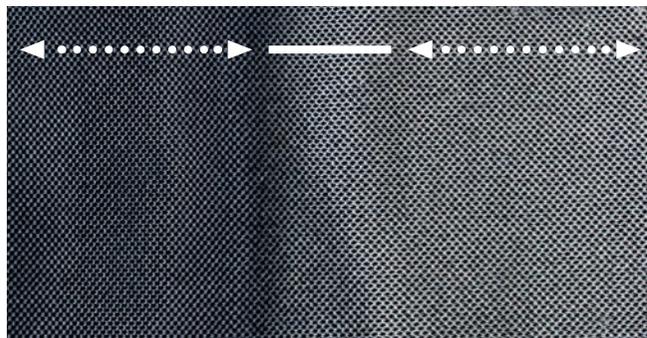
## CURVED FABRICS



# MATERIAL

Functional textiles are determined by their fiber base. As such, it is important that there are no restrictions in the use of fiber types and yarn makeups. STOLL focuses on making this work by advancing their machine technology through offering special yarn-feeding devices and optimized yarn threading.

In this way highly elastic materials can be processed, generating stretchable or compressive fabrics. No-stretch and high-modulus materials can be integrated by means of inlaid and tuck-inserted yarns. Metal wires and bend-resistant materials can be processed to achieve conductive and reinforced fabrics.



Integration of thermo-fusible yarns for sectional reinforcement and shape stabilization.

Fiber materials with dull or coated surface characteristics may be applied to achieve fabrics of an adhesive nature and with a particular durability.

Thermo-fusible and -bonding fiber components can be co-processed to allow special material outcomes to stiffen fabric structures for preformed composite applications and use as in shoe uppers and housing fabrics, for example.



Material combinations of heavy-count yarn integrated into a fine structure.



Automotive

Sport

Home

Industrial

Smart Textiles

Healthcare

Machine  
Technology

Product  
Requirements

Safety &  
Protection

Product  
Design

Material

Technical  
Standards

# STOLL

Innovative technical textile solutions.



TT indu



TT med



TT mobility



TT e-tex



TT home



TT sport



TT protect

# TRANSFORM IDEAS INTO REALITY

## CONSULTING

Everything starts with an idea. We assist our customers with both the development and the implementation. STOLL teams and partners have the experience to turn challenging tasks and problems into knitted solutions. From the selection of materials to relevant application techniques, we ensure the optimal use of STOLL technology for innovative and customized product designs.

## IMPLEMENTATION

Knitting for the markets of tomorrow: complex and difficult shapes, large or small lot sizes, and even individual, custom-designed products can be manufactured in mass-production.

STOLL has an excellent long-standing reputation for customer support and innovation. Flat knitting technology combines weft-knit fabrics with the traditional characteristics of warp-knit, woven, and braided fabrics. Unique possibilities along with new forms, functionalities, and structures can now be realized.

Overall, the goal is the reduction of working processes resulting in quicker production times while using minimum material.

Last but not least, STOLL and our partners will accompany you throughout production - whether it relates to training, development and start-up support, general machine maintenance etc.





# SPORT AND PERFORMANCE APPLICATIONS

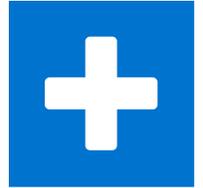
**The optimal combination of functionality and knitting aesthetic is an important factor for sports- and leisure-wear products that will play a major role in the future of knitwear technology.** Suitable yarns, as well as physiological wearing properties, are key requirements in these areas. Flexibility in stitch tensions and sizes allows for new looks and fabric responses. Knitwear used in sportswear demands optimal material composition and special characteristics in their construction, requiring compression, stretch, and blocking features applied variably across fabric surfaces. Furthermore, incorporating pockets of intarsia and inserting conductive threads for innovative and integrated-function fabrics are today a technical standard.

## Applications include:

- Sportswear
- Sports underwear and bras
- Footwear
- Bags
- Bandages
- Sports tools and applications
- etc.







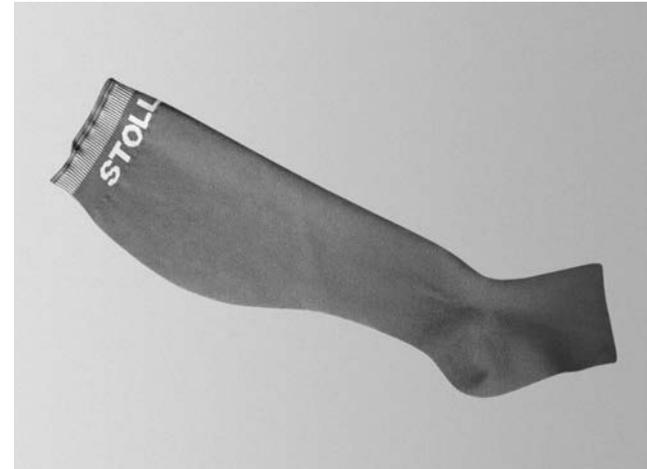
# MEDICAL SOFT PRODUCTS

**The demand for medical soft products has dramatically increased in recent years. In addition, there has also been growth in product diversification.** The ability to use elastic threads in a variety of options is a perfect base for applications in compression therapy, orthopedics, and wound care.

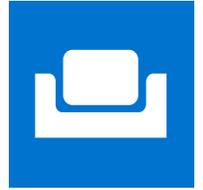
Another benefit provided by STOLL flat knitting technology is the capability to knit products made-to-measure and individually fitted as fully fashion shaped sleeves or seamless garment components. This mass-customization manufacturing capability corresponds to the expanding requirements of individualized customer care.

## Applications include:

- Orthopedic supports
- Customized knit-to-shape compression products
- Special soft uppers for orthopedic shoes
- Complex special bandages
- Orthotic applications such as stump socks and gel liner covers
- Straps for wearable devices
- Sports rehabilitation tools
- etc.







# UPHOLSTERY AND SUSPENSION FABRICS

**Upholstery fabrics can be produced for contract and household furniture.** Their uses are versatile: component linings, upholstery, or suspension fabrics for seats and chairs in the furniture sector. These technical fabrics have to fit perfectly and be easy to process. Special demands are required for these types of textiles, such as wear-resistance, light and color fastness, and low flammability.

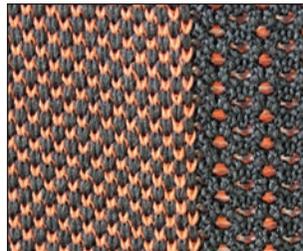
Both woven and mesh-type warp-knit fabrics can be implemented in either 2-D or 3-D shapes, demonstrating the same or even better characteristics as conventional solutions.

## Applications include:

- Office furniture
- Home furniture
- Partitioners
- Lamp shades
- Rugs
- Blankets and pillow covers
- Decorative housing covers
- etc.



Covering material or upholstery fabric with knit-woven fabric look and structural effects.



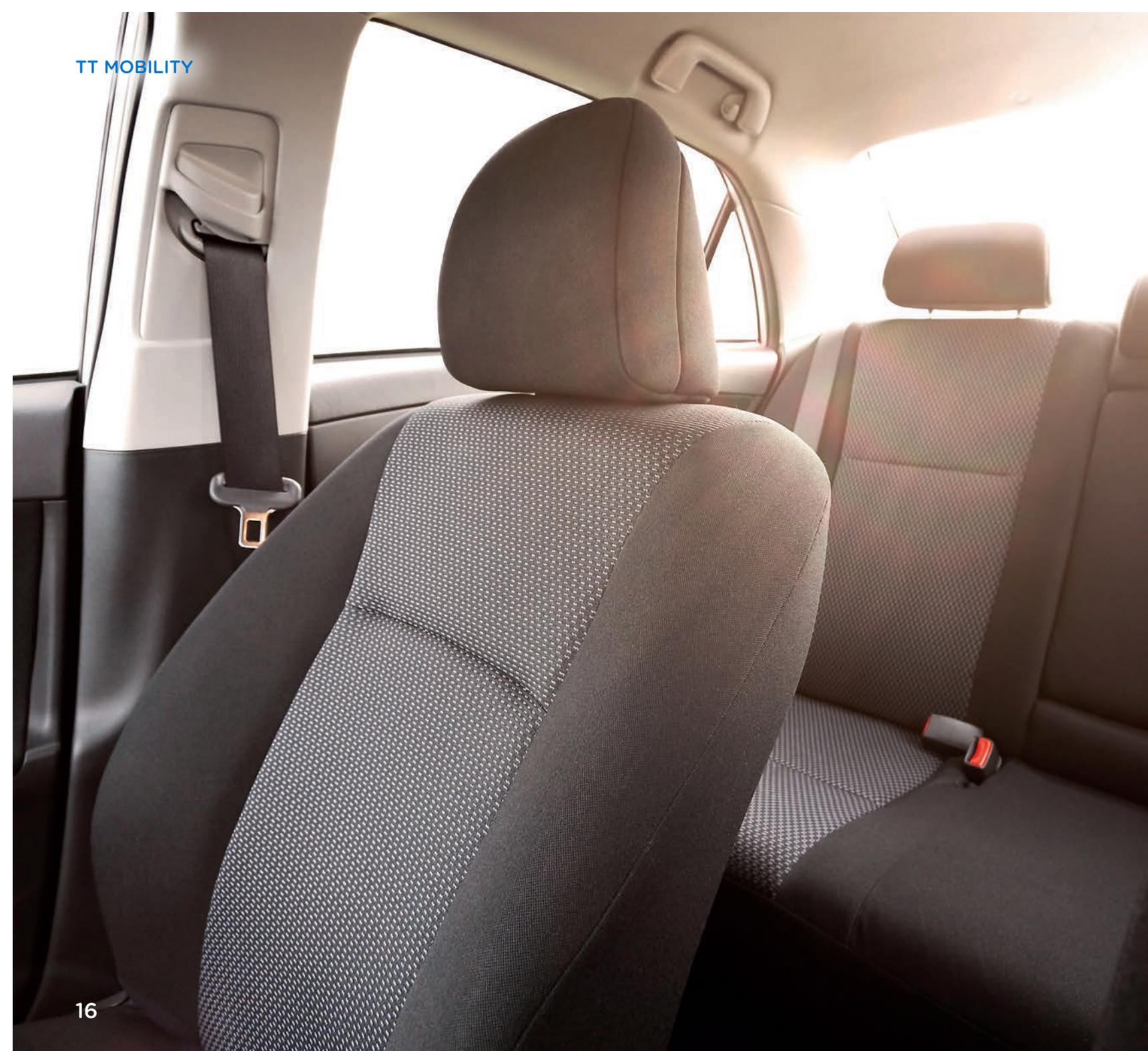
Arbitrary combination of structures and fabric variations on the surface.



Alternating combination of knitted spacer and net structure on seat covers.



A variety of Jacquard and structural fabric features allow a large pattern option base.





# TRANSPORTATION COVER FABRICS

**The transportation and automotive industries have adopted the challenges of the future and are about to define the design of future transportation technologies towards new drive systems and interior concepts.** In all transportation modes, you find identical demands for both lightweight integral-component constructions and more functional and comfort-orientated interior layouts. Fabric solutions from STOLL flat knitting machines develop ideal responses to modern demands, offering exceptional products when it comes to:

- 3-D-shaped items
- Contoured fabric layouts
- Combinations of mesh fabrics with solid structures
- Color combinations for patterning freedom
- Blends of materials to improve comfort, function, and performance
- Simple and integrated fastening solutions
- Reduced or single-source supply
- etc.



## Applications include:

- Seat covers
- Dashboard covers
- Side panels and interior covers
- Webbing solutions
- Suspension applications
- etc.



# PROTECTION AND SAFETY TEXTILES

**The increased demand for body and health protection is supported by the consistent application of industrial standards, influenced by global supply solutions and relevant legal directives.** Safety and protection textiles affect not only work wear but also increasingly leisure wear and sportswear.

Frequently, the characteristics of special yarns in combination with specially chosen structures form the base for knit protection wear and housing components. Yarns used in safety applications are expensive, and so in this regard, the knit-to-shape approach helps to save high material costs in protective applications against cutting, stabbing, impact, friction, fire, or heat.

## Applications include:

- Gloves and specially reinforced glove components
- Protective sleeves and apparel components
- Composite helmet structures
- Helmet inner linings and webbings
- Upper and inner soles for protective shoes
- Integrated protector solutions
- etc.



Glove upper combines sectional protection areas with high stretch and comfort.

Fully round-shaped helmet composite liner with weft inlay for tightening the structure.



Cushioning weft inlay yarns improve protection and comfort in uppers for safety shoes.



# COMPOSITE MATERIALS AND INDUSTRIAL TEXTILES

**Environmental requirements in the aviation and transportation industries have increased the demand for lightweight composite materials.** The conventional manufacturing of multilayer composite shells is very labor-intensive: single layers have to be cut out and draped in a mold before processing can continue. Thanks to contouring and 3-D-shaping options, STOLL flat knitting machines offer many productivity advantages that are not realizable with other textile-manufacturing processes. Multilayer and spacer solutions assist in generating high fiber content and relevant substrate reinforcements.

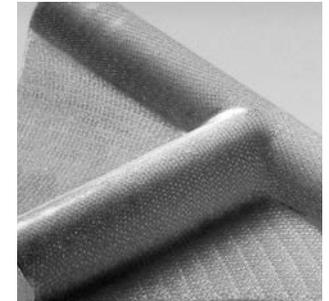
Thermoplastic-fiber material blends ease the use of preformed prepregs to strengthen the use of composites on larger-scale applications. Based on similar technical material resources, other industrial textiles such as insulator bodies and coating carriers can also be produced on STOLL flat knitting machines.

## Applicable for:

- Composite housings and casts
- Air ducts
- Insulators
- Coated reinforcement structures
- etc.



Curved pipe body with side connectors.



Angled knit pipe produced in one piece without manual intervention.



Pipe collar with neck.



Weft-reinforced fabrics using carbon fiber materials.



# CONDUCTIVE AND RESPONSIVE MATERIALS

**STOLL flat knitting machines allow a controlled placement of materials.** The insertion of selected intarsia zones to specifically locate conductive yarns, as well as tunnels and pockets to sensing, actuating, and power-fueling devices, ensures the maximum of product integration in one process. As such, the layout of a conductive textile product can specifically be designed for functionality, with the performance zones either on show or hidden.

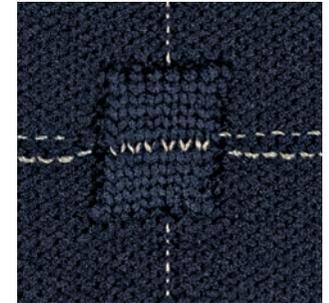
Smart functionality can be integrated into clothing and accessories for signal registrations, surveillance, and transmission with regard to health and workout control. Heat generation, pressure, and stretch sensors are additional functions that can be implemented as part of the textile construction.

## Applications include:

- Medical devices
- Warming/heating textiles
- Actuators
- Steering and control devices
- etc.



© Myant Inc.



Bridging wires without interconnection.



Sector-placed wire fields for sensing.

Following the large demand for machines with various application needs, STOLL has successfully introduced machines for diverse technical clusters such as TT med and TT sport with the intention to extend that specialization over the coming years. Machine configurations are as versatile as the areas of applications they are used for. As a machine builder with a history spanning 145 years, with all relevant machine components and controls still coming from one source, we know what it takes to build the right machine for your needs. The evolutionary development of the STOLL CMS and ADF machine technology allows us to respond to a large variety of machine configurations which may foresee special adaptations when it comes to extra knit functions, improved 3-D-shaping effects, most consistent fabric outcomes and processing of unconventional materials. As such, we look forward to working on your product and production needs, even if it takes time to get there.



WHERE  
VERSATILITY MEETS  
CUSTOMER  
NEEDS

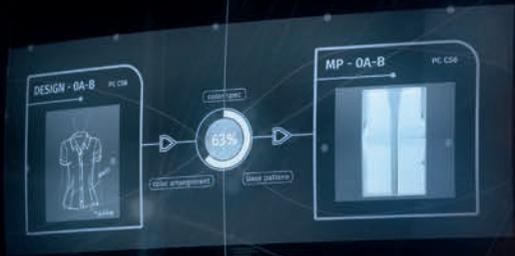
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05:55

CARPI  
11:55

REUTLINGEN  
11:55

DELHI  
16:25

DHAKA  
16:55



autocreate.m1plus - module.v04



GRADING.PROCESS.B45



PPS / APM

OPERATOR

PPS / Production Optimization

Item	Value 1	Value 2	Value 3
CMS ADF 16	7	40	
CMS ADF 16 B	25	38	39
CMS ADF 16 W	27		
CMS ADF 32	13	35	47

Legend: completed, current, remaining, following

# knitelligence® – YOUR ACCESS TO THE FUTURE OF KNITTING

Master the challenges of tomorrow's market with our revolutionary networking STOLL software solutions – from rapid prototyping through to individualized grading and patterning, as well as optimized production management. STOLL knitelligence® enhances efficiency throughout the entire value chain. The boost for you and your flat knitting production!



Consistent and optimized workflow.



Improvement of plant efficiency through real-time transparency.



Increase in productivity.



Fast error source identification.



Improvement of response times and adherence to schedules.



Rapid shape and design realization.

FOR MORE INFORMATION, VISIT:  
[STOLL.COM/KNITELLIGENCE](https://stoll.com/knitelligence)



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