Embroidery and Sewing for Interior Solutions

STARTECH
PERFORMANCE
610

STARTECH
REFINEMENT

Why ZSK Stickmaschinen?

- For decades Sewing and Embroidery were processes for different equipment. ZSK machines enable to combine Sewing and Embroidery in one process.

- ZSK solutions allow processing of fabrics, artificial leather and leather. Materials laminated on foam or spacer fabric create the basis for 3D effects.

- The Optical Positioning System allows perfect position of Sewing, Embroidery and Perforation, while at the same time allowing for material shrinkage.

- Efficient processes come with the right tools. ZSK offers in house production of tools and supports the design development process and sample production.

- ZSK is your partner from the first idea up to automation of the production process.

What is the difference between Sewing and Embroidery?

- Sewing is a constructive and functional process of joining two (or more) materials together.

- Embroidery is a decorative art.

- Sewing threads are thicker and stronger than embroidery threads

- A typical sewing machine is not CNC controlled and does not allow automatic x and y movement of the fabric. It requires an operator to move the material in the right direction.

- An embroidery machine is driven by a design file and the work piece is clamped into a frame that holds it in place with the right tension.

- Sewing machines have 1 needle (colour) where embroidery machines come as multi-needle (up to 24 colours)

What are the Applications in the Interior Industry?

- ✓ Industries: Automotive, Furniture, Aerospace, Carpets
- ✓ Automotive foot mats
- ✓ Carpets
- ✓ Headliner
- ✓ Door Inserts

- ✓ Headrests
- ✓ Cushion and Seats
- ✓ Brand Logos and Crests
- ✓ Chairs and Sofas

What are the benefits of ZSK Technology?

- Sewing Thread and Embroidery Thread (and even Conductive Threads) can be combined in one pattern
- ZSK manufactures Single Head Machines and up to 56 Head Machines (depending on application, sewing field and required takt times)
- Embroidery Heads can be equipped with 6, 9, 12, 18 or 24 Needles
- Multi Colour Designs without manual change of threads
- Large Sewing Fields – up to 2.100 x 2.500mm
- Flexibility in terms of Stitch Pattern Designs
- CNC Control – Designs can be loaded with starting coordinates via barcode from network
- The yarn tension can be manually set per needle
- Automatic Select Bobbin Changer allows matching of needles with bobbin thread type, colour and tension (8 bobbin per magazine)
- ZSK machines work with a precision of 0.1mm
- Artworks can be transferred into stitch files with the EPCwin Software
- The Optical Positioning System (OPS II) allows recognition of perforation and adjusting of sewing files to material changes
- The ZSK Embroidery Programming Language (ZEPL files) allows the automation of the sewing process and recalculation of the sewing files due to material shrinkages
- The machines can be equipped with border frames (for sampling) and custom frames for pre cut parts

Which Services does ZSK offer?

- ✓ Development of Stitch Type Patterns
- ✓ Creating of Sewing and ZEPL files from Artworks
- ✓ Development and Production of custom Frames
- ✓ Sample Production of first Design Samples

- ✓ Technology Consultancy
- ✓ Delivery and Installation of ZSK equipment
- ✓ EPCwin CAD Software Training
- ✓ Operations and Maintenance Training
- ✓ After Sales Service

Which Sewing Fields can ZSK offer?

- The SPRINT Classic has a sewing field of 310 x 460mm.

- The RACER Series models have sewing fields of 500x500mm up to 700x1.400mm.

- The CHALLENGER Series has sewing field depths of 500,700, 1.000, 1.200, 1.400, 1.500, 2.000 or 2.500mm.

- ZSK offers +/- 150 available machine models with a variety of head distances.

- Customer specific models can be developed upon request.

- The table plate design should be discussed for each project. Especially for large field depths, it is recommended to have doors for easier service access.

Why EPCwin CAD Software?

- **Complete CAD Drawing Program**
  Use EPCwin for all production steps and also create your vector files with the fully integrated CAD drawing mode.

- **Highest Precision**
  EPCwin 7 is outstanding in terms of precise stitch calculation. With adjustable stitch limitation, angle settings and stitch filters, each design can be controlled stitch by stitch with an accuracy of 0.1mm.

- **Optimal Machine Control**
  EPCWIN offers a seamless workflow and full machine control through a direct connection to your ZSK machine solution. This also improves production efficiency and embroidery quality.

- **Collaborative Work on Projects**
  With EPCWIN, files or parameters can be perfectly organized and shared for a constant and traceable workflow.

EPCwin catalog (PDF)

- **Creation of your own Stitch Patterns**

- **Support of ZEPL File Format**

catalog.zsk.de
Download: EPCwin catalog (PDF)
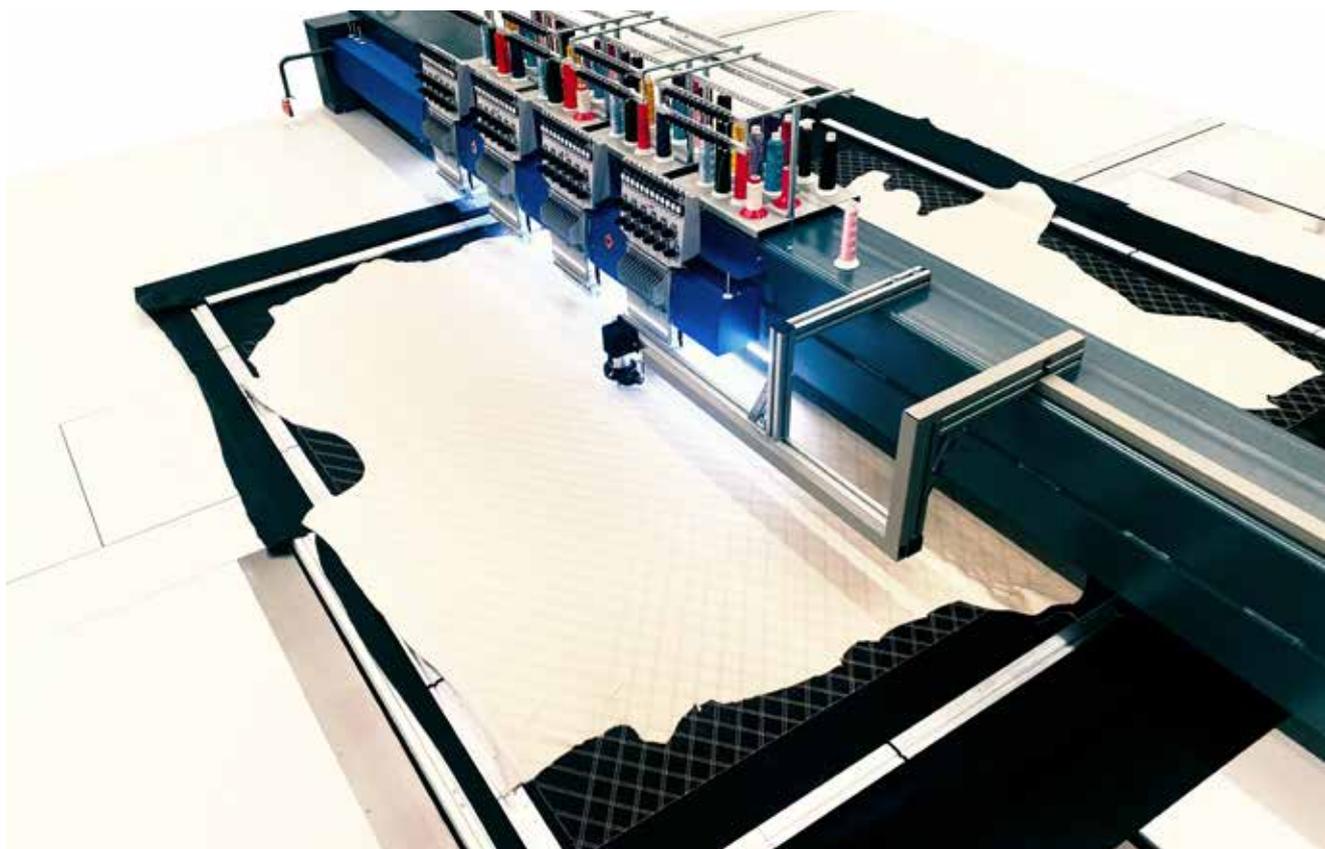
CMCF 0412
Embroidery Field max.: 2.100 mm x 2.500 mm

SPRINT

RACER 1XL

How does ZSK achieve high quality seams in all directions?

- Important for the quality of the seam is the choice of the needle and the tension of the thread and the bobbin thread.

- Depending on the requested seam look different needle types can be selected.

- ZSK offers special Groz-Beckert needles up to size 140 for the DBxK5 system.

- Different levels of spring strengths are available to be suitable for different material heights.

- ZSK recommends the use of tension meters for suitable adjustments of thread tension and bobbin case tension.

- The ZSK system supports thread tensions of up to 1.800cN.

- Continuous circumference sewing is no issue for ZSK.

www.groz-beckert.com
Download: Sewing machine needles for leather and technical textiles (PDF)

Why is the ZSK Embroidery Programming Language (ZEPL) important?

- Perforated fabrics and leather are difficult to sew perfectly due to shrinkage during the lamination and sewing process.

- During the sewing process the material shrinks. A process that evens out some of the shrinkage is needed during sewing.

- ZEPL files split the designs in a number of different processes i.e. each sewing line can be its own file.

- n the ZEPL file the order of sewing is defined.

- The ZEPL file automatically loads the next sewing line and instructs the embroidery machine to which coordinates to follow.

- The OPS II System calculates distances between points and adjusts the files to the shrinkage and displacement measured.

- To generate the ZEPL file, one can load the DXF file of the design into EPCwin and define the order and stitch pattern.

## Can the OPS II System recognize more than perforation?

- Perforation is a design technique that is used for design purposes and improved ventilation.

- ZSK can recognize perforation of a variety of sizes.

- ZSK can recognize the centre of a perforation channel or corners or individual points.

- If there is a perforation channel without corners on each end, ZSK can recognize the material edges to calculate the length and starting point of the pattern.

- The OPS II system can semi-automatically detect embossing and colour changes.
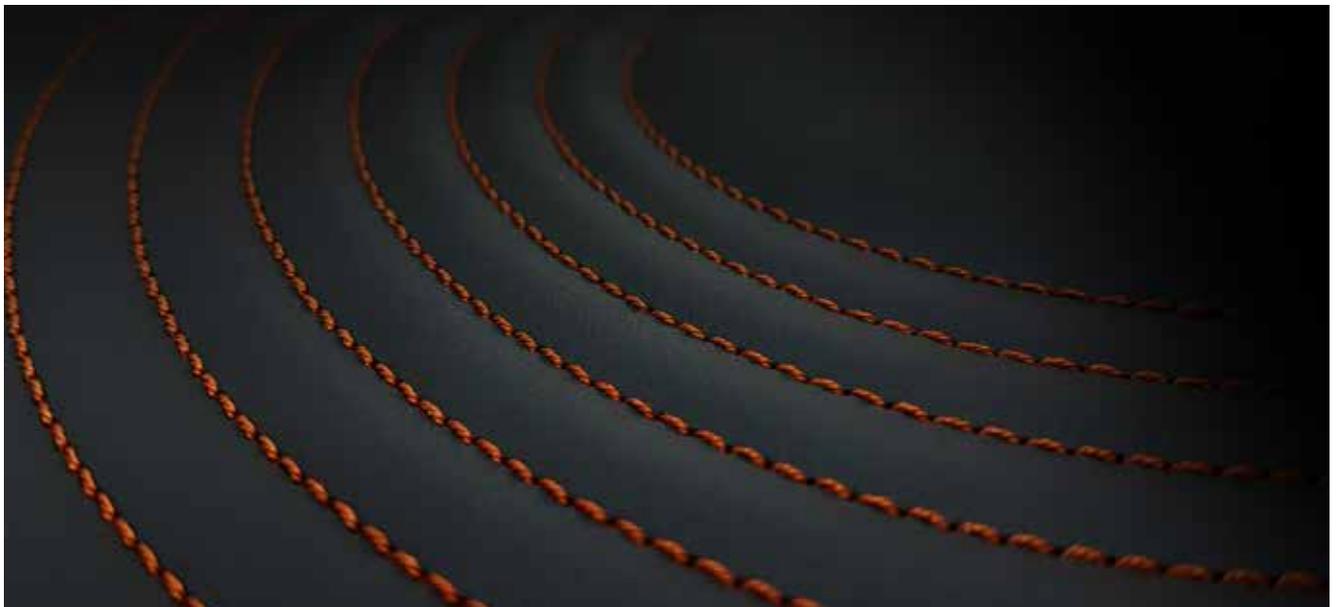
What is the Optical Positioning System (OPS II)?

- The system consists of a digital high resolution camera, a ring light and a Linux laptop with the OPS II operating system.

- The high resolution camera can observe areas of 3x3 cm to make best use of the high resolution.

- The system can detect perforation, embossing and colour differences (i.e. laminated PVC stripes).

- Up to 10 reference points on each sewing line can be detected to compensate non-linear shrinkages.

- For each design a QR code is created that includes the design file, the coordinates for the starting point, the filter settings and camera setup.

- Filter settings can be chosen i.e. for each leather colour. Leather colours have an influence on the recognition of perforation.

- Camera settings are important to adjust the camera automatically to different leather heights.

- On the laptop monitor it is possible to monitor the reference points. In the manual mode they can be selected manually.

- The OPS II allows sewing with very high precision and reducing scrap rates to an absolute minimum. Without the OPS II system, a sewing machine would not compensate for the shrinkage and displacement impact and therefore sewing lines would be at the wrong position and parts would visually be not acceptable.
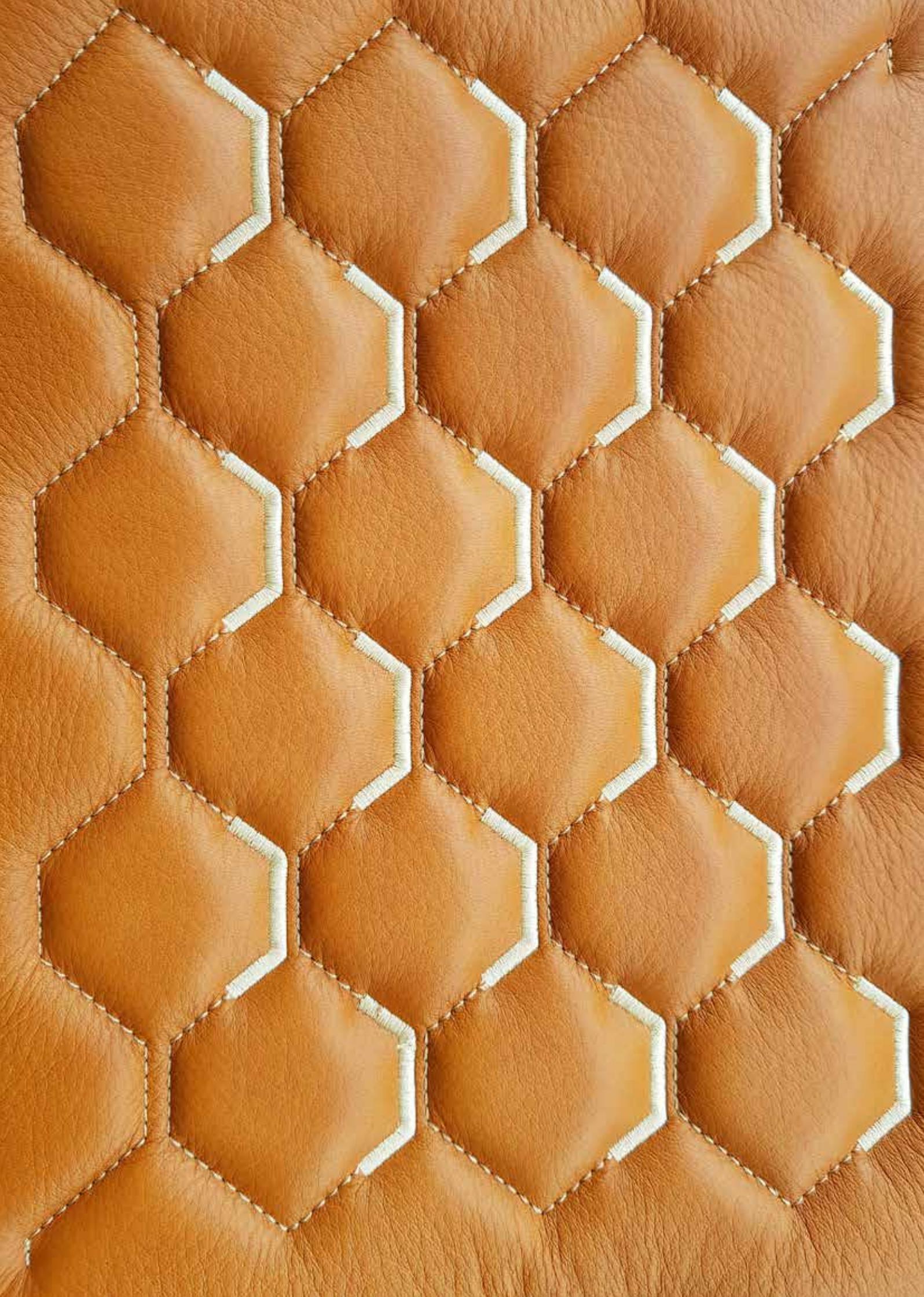
Custom Frames

Automatic Bobbin Changer
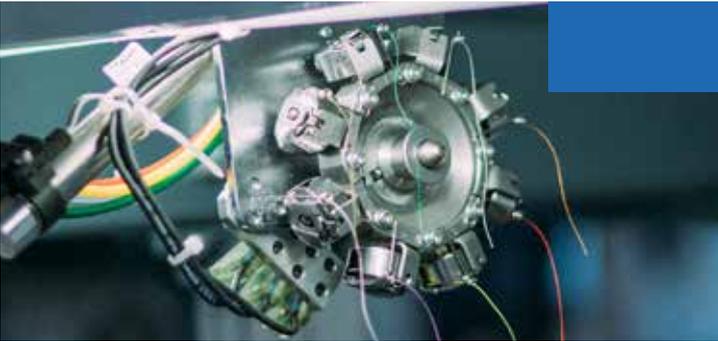
Take Up Lever Protection

Thread Tension Meter

Needles - Exclusive for ZSK

Bar Code Controls

Safety Devices

Production Analysis

Pneumatic Clamping

Traffic Lights

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What Frame Systems does ZSK offer?

- ZSK machines can be equipped with border frames or custom frames.

- Custom Frames can load a part with manual or pneumatic clamps.

- Parts can be pure fabrics or leather or laminated parts. Leather and foam can also be placed on top of each other.

- The border frame requires a non-woven backing material and is ideal for sampling and one-off productions.

- Custom Frames are required for head rests and seat patterns. The Custom Frames can be connected with a Pneumatic Clamping System to reduce process times in changing patterns.

- Rectangle Custom Frames to defined sizes are used for patterns where the fine cut is done after the sewing process.

- The border frame can be used for Wooden Hoops or Magnetic Hoops if i.e. a logo or crest is embroidered on the material.

- Large border frames can be equipped with dividers and the frame can be split is smaller parts.

Does ZSK support Maintenance with Software?

- Maintenance can be tracked in the ZSK Terminal Software.

- Maintenance intervals can be set in the software and the operator and maintenance team keep track of the completed intervals.

- Beside training and local service, the ZSK YouTube Channel offers a variety of videos that support the maintenance team during their service work.

- Recommended service intervals can be defined together with ZSK based on the use of the equipment.
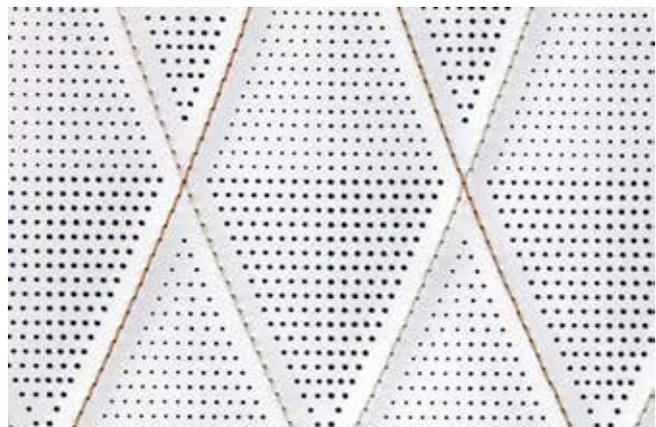
What else can ZSK equipment do?

- ZSK machines can be equipped with additional accessories such as Sequin Devices, Bead Devices, Cording Devices and Laser / Hot Air Cutter.

- Conductive Yarns can be used to stitch E-Textiles and Sensors.

- ZSK offers a line of Technical Embroidery Machines that lay wires for Seat Heaters and Steering Wheel Heaters, Battery Heating, Infrared Heating etc.

- For Composite Applications, ZSK technology can be used to lay Fibres such as Carbon and Glass Fibre.

If you are curious to learn more, scan the QR code for more reading:

ZSK Magazine

Technical Embroidery

Catalog

ZSK Technical
Embroidery Systems

ZSK Whitepaper

A Guide To
Technical Embroidery

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