THE PERFECT SEAM

Sewing and Embroidery Solutions for Automotive and Interior

VERSION: 003

SUBJECT TO CHANGE

ZSK - THE PERFECT SEAM

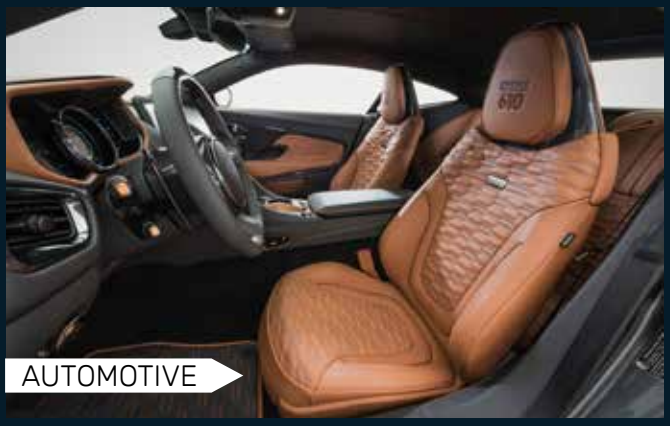
INNOVATIVE SEWING AND EMBROIDERY SOLUTIONS

For decades, sewing and embroidery required separate equipment. ZSK as a manufacturer with a rich history and reputation in the field of durable embroidery machines now integrates both processes into one.
ZSK solutions handle fabrics, artificial leather, alcantara and leather, even those laminated on foam or spacer fabric, enabling impressive 3D effects.

The Vision System ensures precise alignment for sewing, embroidery, and perforation, accommodating material shrinkage.

ZSK supports efficient processes with in-house production of tools, supports the design development process and sample production. From initial concept to automated production, ZSK is your dedicated partner throughout.

1 - INDUSTRIES


AUTOMOTIVE

AIRCRAFT

CARAVANNING

CRUISE AND FERRY

APPLICATIONS

ZSK sewing and embroidery solutions are covering a whole range of interior applications:

- Seats
- Headrests
- Door/floor mats
- Door panels
- Roof liner
- Accessories

2 - POPULAR MACHINE MODELS

2.1 RACER 0124-1000 (700)

No. of Heads | Needles	1 | 24
Head Distance:	-
Max. Embroidery Field Width:	1.000 mm / 39,4“
Max. Embroidery Field Depth:	700 mm / 27,6“
Max. Speed:	1.000 rpm
Machine Measurements WxDxH:	2.580x1.840x1.790 mm 101,5x72,5x70,5“

2.2 RACER 1XL

No. of Heads | Needles	1 | 24
Head Distance:	-
Max. Embroidery Field Width:	650 mm / 25,6“
Max. Embroidery Field Depth:	700 mm / 27,6“
Max. Speed:	1.000 rpm
Machine Measurements WxDxH:	1.960x1.825x1.790 mm 77,2x71,9x70,5“

2.3 RACER 0224-700D (700)

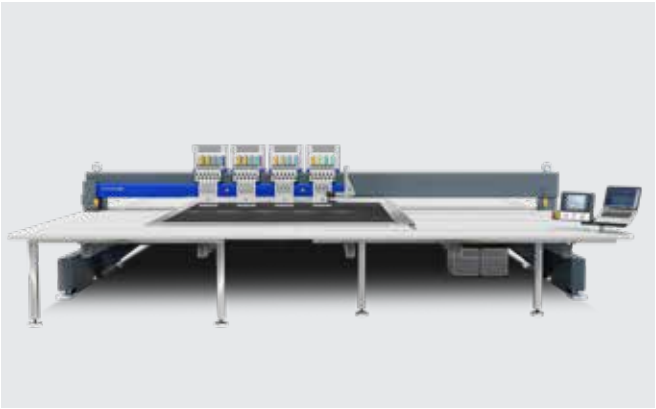
No. of Heads | Needles	2 | 24
Head Distance:	700 mm / 27,6“
Max. Embroidery Field Width:	700/1.400 mm / 39,4/78,8“
Max. Embroidery Field Depth:	700 mm / 27,6“
Max. Speed:	1.000 rpm
Machine Measurements WxDxH:	3.380x1.840x1.760 mm 133,1x72,5x69,3“

2.4 CHALLENGER SGF 0224-700D (1000)

No. of Heads | Needles	2 | 24
Head Distance:	700 mm / 39,4“
Max. Embroidery Field Width:	700/1.400 mm / 39,4/78,8“
Max. Embroidery Field Depth:	1.000 mm / 39,4“
Max. Speed:	1.000 rpm
Machine Measurements WxDxH:	4.100x2.460x1.660 mm 161,4x96,9x65,4“

2.5 CHALLENGER MCF 0412-450Q (2500)

No. of Heads | Needles	4 | 12
Head Distance:	450
Max. Embroidery Field Width:	450; 900; 1.350; 1.800; 2.100 mm 17,7; 35,5; 53,2; 70,9; 82,7“
Max. Embroidery Field Depth:	2.500 mm / 98,5“
Max. Speed:	1.000 rpm
Machine Measurements WxDxH:	5.690x5.460x1.640 mm 224x215x64,6“



More models up on request.

3 - MACHINE SETUP

TECHNICAL SPECIFICATION

ZSK offers +/- 150 available machine models with a variety of head distances, needles or embroidery field sizes. Customer specific models can be developed upon request.
Various table plate designs are available to ensure optimal operating or service access, especially for large embroidery field depths.

No. of embroidery heads	up to 56
No. of needles per head	6, 9, 12, 18 or 24
Size of thread	15 - 210 tex
Thread type	Sewing and embroidery thread
Material thicknesses	up to 20 mm
Sewing field size	up to 1.400 x 700 mm on RACER up to 2.100 x 2.500 mm on CHALLENGER

4 - VISION SYSTEM

PRECISION IS KEY

The also called Optical Positioning System (OPSII) is a camera based system which is needed for perforated leather/fabric (e.g. Alcantara, artifical leather) cut parts to guarentee precise placement of sewing lines/decorative elements within the perforation gaps.

The system compensates the deviation caused by the lamination, perforation as well as sewing process.

For this purpose a variance analysis is made between the inital CAD file and the final cut part. Within a fraction of seconds the software recalculates the position of the sewing lines/decorative elements. This includes enlarging, downsizing and rotation.

Besides perforation the system also detects embossed, welded or printed effects on leather/fabric.

Depending on customer needs we are offering two software versions of the Vision System: Standard and Advanced

4.1 STANDARD

COMMON FEATURES

- Applicable for perforation, embossing, welding and print on leather and fabric
- Up to 10 scan points per sewing line/decorative element
- Regocnition of different hole sizes and shapes
- Detection of different colours
- Adjustable to different material heights
- Easy QR-code creation of each design for efficient production

4.2 ADVANCED

ADVANCED ADD ONS

EDGE DETECTION
Edge detection ensures exact positioning of the back-tacks independent from cut part tolerances by measuring the size of the cut part with the first and last scan point at the cut part edges.

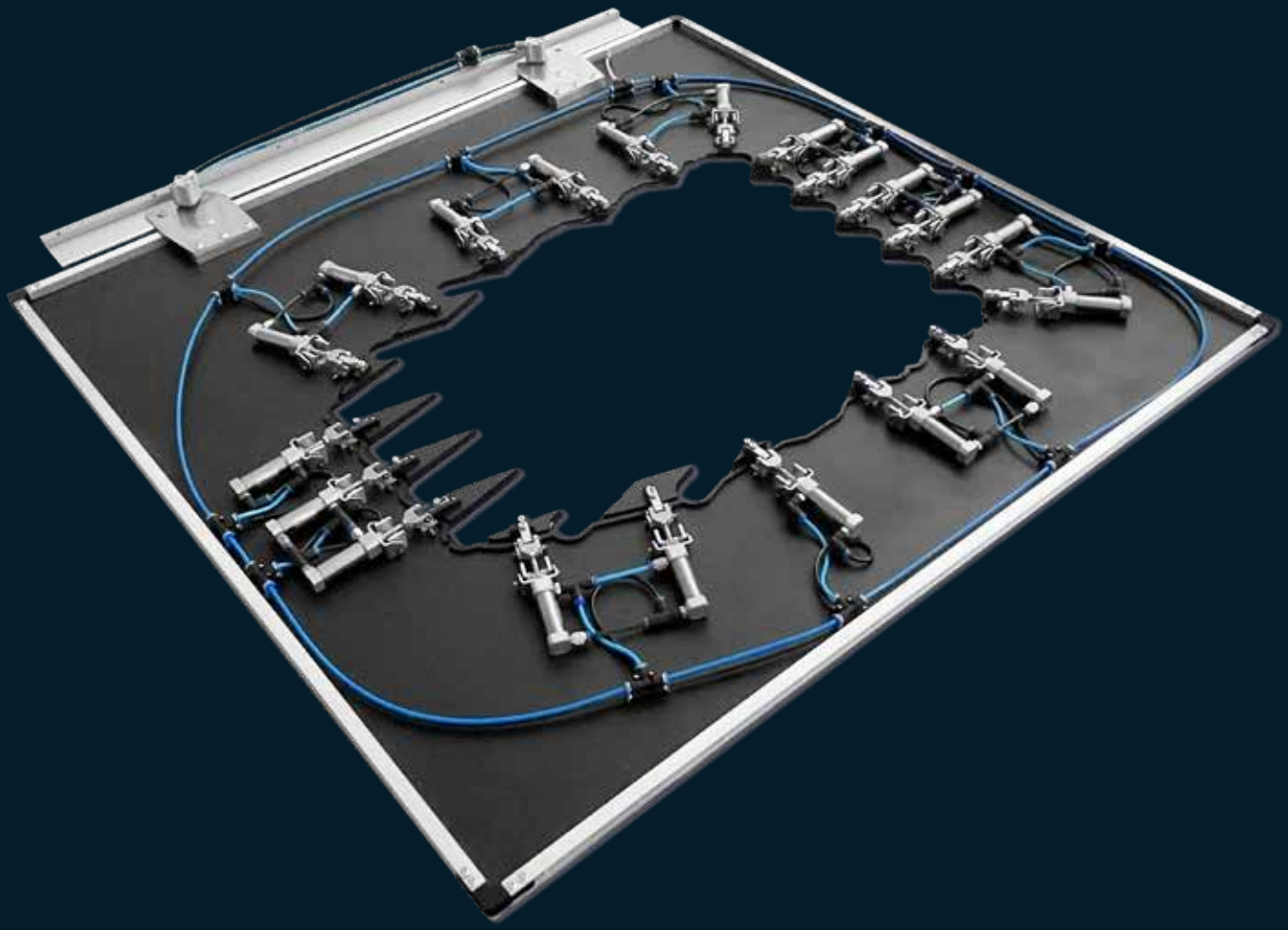
Positive or negative notches on the cut part do not cause an issue since there are special filter settings for notches.

Edge detection is a unique feature by ZSK which solves the issues of misaligned back-tacks caused by tolerances in the pre-processes.

In this context the software reduces the scrap rate as well as downtimes of the machine.
Recommended e.g. for production with fine cuts.

VERIFICATION SIZE OF DESIGN VS. FRAME
Before the machine starts to operate the software reviews if the recalculated design still fits to the frame. This avoids machine damages and decreases down times.

SELECTION OF HOLE COLOUR
Improved contrast settings between the leather/ fabric colour and the colour of the perforation holes. This allows a considerable relief for working with fabrics like e.g. Alcantara, Dinamica and Suede.



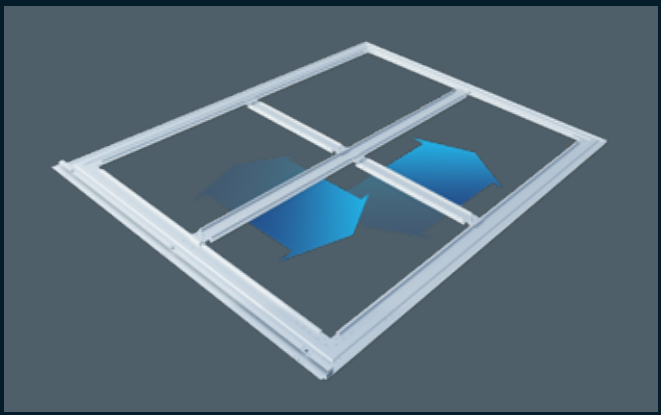
5 - FRAME SOLUTIONS

At ZSK, we boast our own frame shop floor where every aspect of design, construction, and manufacturing is handled in-house. This enables us to tailor our machines and equipment to meet your specific needs and project requirements.

5.1 BORDER FRAME

PRE-DEVELOPMENT

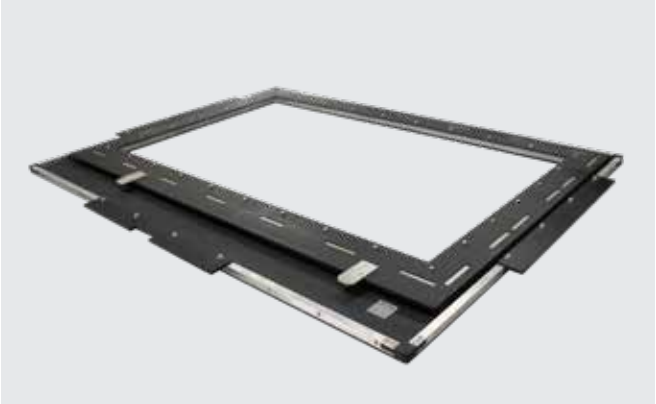
- Basic frame covers maximum sewing/ embroidery area of the machine
- Backing material required for fixing cut parts
- Border frame dividers available
- Essential for prototyping in the pre-development phase



5.2 CUSTOMIZED RECTANGULAR FRAME

DEVELOPMENT

- Simple rectangular frame
- Fixed blocker sizes of the cut parts
- Development phase: Prototyping and Sampling
- Available with pneumatic connection rail



5.3 CUSTOMIZED FRAME WITH INLAY

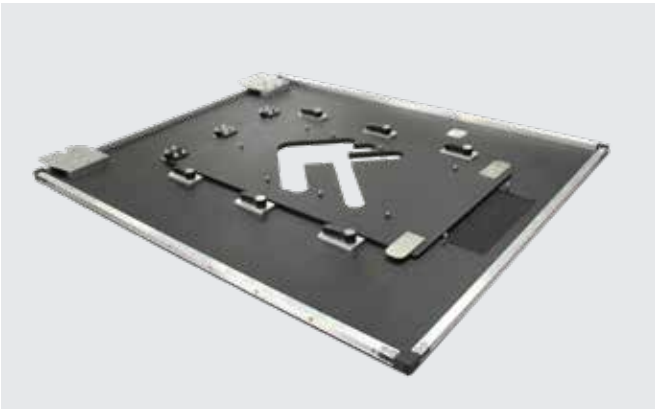
DEVELOPMENT

- Simple rectangle with inlays
- Varying blocker sizes or cut parts with latches
- Development phase: Prototyping and Sampling
- Available with pneumatic connection rail

5.4 CUSTOMIZED CUT FRAME

SERIAL PRODUCTION

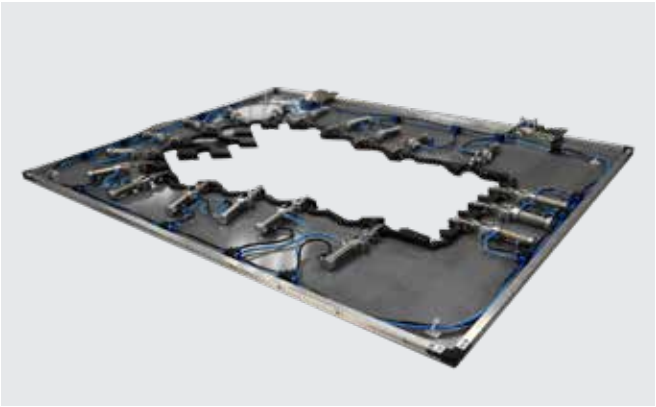
- Customized to cut part shape
- Handles final cut parts
- Suitable for serial production
- Available with pneumatic connection rail



5.5 CUSTOMIZED PNEUMATIC FRAME

SERIAL PRODUCTION

- Customized to cut part shape, including pneumatic clamping
- Final cut parts with reduced clamping area
- Suitable for serial production
- Available with pneumatic connection rail



Other types of customized frames upon request.

6 - EMBROIDERING FLOOR MATS

6.1 FLOOR MAT TENSIONING

FLEXIBILITY

Floor mats can be enhanced with high-quality embroidery. ZSK provides the appropriate equipment for this. The displayed pneumatic floor mat tensioning enables effortless clamping.

7 - EMBROIDERING DECORATIVE SEAMS

7.1 DECORATIVE SEAMS

PRECISION

- Utilize countless pre-installed decorative stitches in EPCwin.
- Create your own decorative stitches and enjoy limitless design freedom.

8 - OPTIONS

8.1 JUMBO HOOK

PRODUCTIVITY

- Depending on thread size up to 50% more bobbin thread
- Less bobbin changes

8.2 AUTOMATIC BOBBIN CHANGER

PRODUCTIVITY

- Bobbin change by using the T8 control panel
- Cycle of 8 bobbins on one magazine

8.3 AUTO SELECT BOBBIN CHANGER

PRODUCTIVITY

- Additional feature: Needle – bobbin assignment
- Allows automatic combination of thread colours or different thread sizes

8.4 PNEUMATIC CONNECTION RAIL

PRODUCTIVITY

- Quick change of frames
- Easy handling by foot pedal or switch

8.5 TRAFFIC LIGHT

PRODUCTIVITY

- Displays the machine status
- Indicates whether the machine is operating, experiencing a fault, or ready to accept new orders.

8.6 LIGHT BARRIERS

SAFETY

- Automatic stop of the machine
- Different versions available

8.7 TAKE UP LEVER PROTECTION

SAFETY

- Maximum safety for the operator
- Prevents to get fingers caught

8.8 FRAME CONTROL

SAFETY

- Additional monitoring
- Checks if the frame is in the correct positon and clamps are closed

9 - OPTIONS VISION SYSTEM

9.1 ERGONOMIC T8 AND LAPTOP MOUNT

STANDARD & ADVANCED

- Modular mounting system for T8 and vision system laptop
- Easy operation and improved design monitoring for the operator

9.2 CAMERA PROTECTION

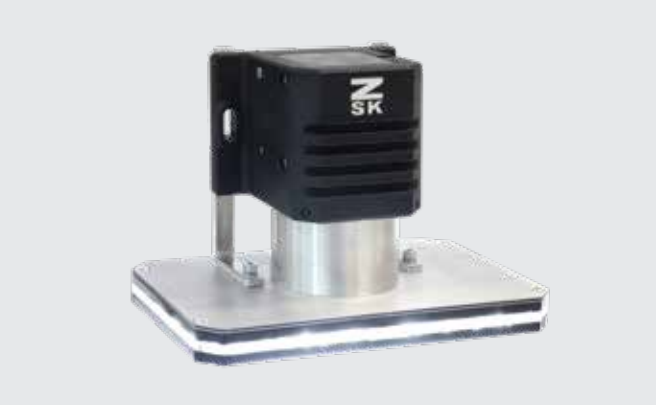
STANDARD

- Prevents the lid from hitting the camera when opened
- Reduces recalibration of the camera because of mechanical shocks

9.3 RINGLIGHT PREMIUM

ADVANCED

- Enlarged lightfield
- Mandatory for use of edge detection



9.4 TABLE PLATE INSERTS

ADVANCED

- Enhanced recognition of different leather colours
- Mandatory for use of edge detection

STARTECH
PERFORMANCE
610
STARTECH

10 - ACCESSORIES

10.1 TABLET SOLUTION

PRECISION

- Touch screen with customized applications
- Monitoring and access to process datas

10.2 QR-CODE SCANNER

PRODUCTIVITY

- Quick load of designs and frames
- Avoids operator errors

10.3 TENSION MEASUREMENT DEVICE

PRECISION

- Ensures consistent quality and reproducibility
- TOWA for bobbin and embroidery thread/ Hans Schmidt for sewing thread

10.4 BOBBIN WINDER

FLEXIBILITY

- Automated winding process to safe time and achieve stable bobbin standard
- Covers sewing as well as embroidery thread

10.5 NEEDLES

PRECISION

- Wide range of needle tips for different applications
- Ensures the perfect seam

11 - 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.

HOW DOES IT SUPPORT YOU?

- Decorative seams
- Creation of your own Stitch Patterns
- Supports export format for Vision System including edge detection

12 - SUPPORT

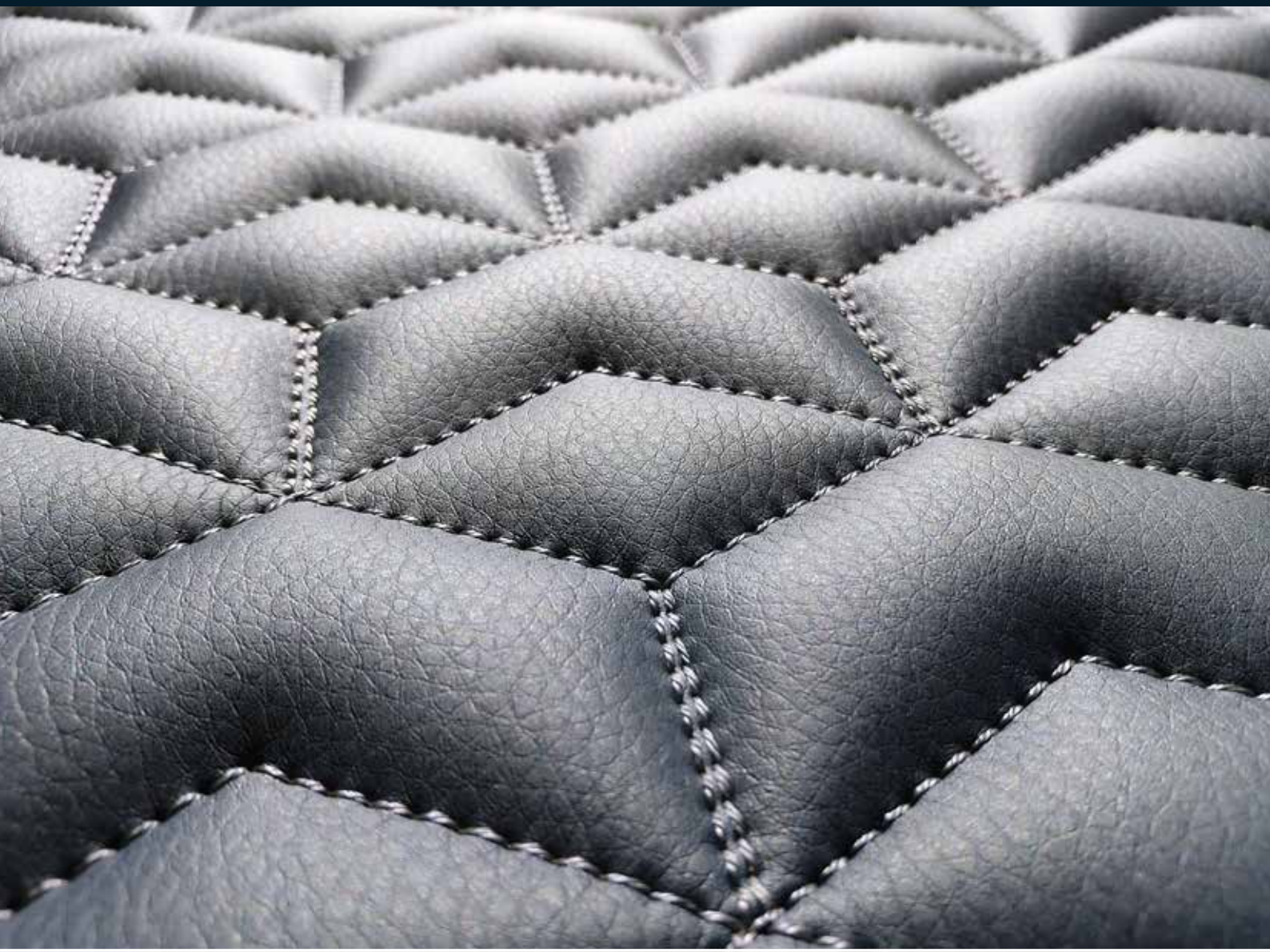
SERVICE

ZSK supports from the first design idea up to serial production.

- Design development
- Design and production of frames
- Feasibility studies
- Prototyping
- Time studies
- Production of pilot series
- Production until machines are out for delivery
- FAT (factory acceptance test)
- SOP (start of production)
- Software/machine and application training

GET INSPIRED!

Watch our video about Sewing and Embroidery on Leather.



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