

Technical Embroidery Systems



 MADE
IN
GERMANY

ZSK Embroidery Machines "Made in Germany"



FIXING THROUGH EMBROIDERING IS ONE OF THE MOST ACCURATE AND EFFICIENT PRODUCTION METHODS.

ZSK TECHNICAL EMBROIDERY SYSTEMS

LAYING MACHINES FOR FIBERS AND WIRES

The Technical Embroidery Systems of ZSK Stickmaschinen GmbH enables with the use of new and innovative techniques the laying and fixing of different media on textile and/or flexible carrier material.

The laying with ZSK embroidery machines, meaning the fixing through embroidering is one of the most accurate and efficient production methods.

Media like wires and any kind of fibers, tubes and optical fibers can be layed flexible and will be fixed secure and strongly through embroidery techniques like the ZigZag stitch. Materials with different conditions like Polyamid, Polyester, PPS or Aramid are available as a yarn. For products with special load requirements yarns with a steel core can be used if applicable.

Advantage Superior Flexibility

The outstanding and essential difference between the processes of ZSK's Technical Embroidery Systems and techniques like weaving, knitting or even braiding consists into the absolutely free and flexible laying of the media at the 2-dimensional level of the carrier material. The laying is limited only by the physical characteristic of the media.

Advantage High Level of Automation

A significant higher efficiency can be achieved at the production of technical textiles by using our advanced automation techniques. Quality, production output and labour costs will benefit on a high level from the options which are available for any machine of ZSK's Technical Embroidery Systems.

Field of application - laying wires

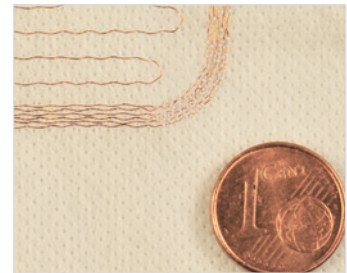
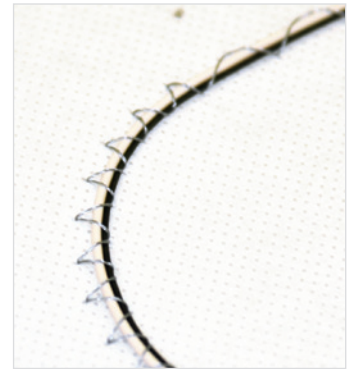
The laying of wire is an essential part in the production of many products from all spheres of life today. Laying wire with ZSK's Technical Embroidery Systems is cost efficient, more reliable and environmentally friendly.

One of today's most innovative fields of activity is the embroidering of antennas (RFID) and sensors on textiles. Without any damage of the textiles characteristic signals like fill level, movement or temperature can be measured and relayed.

Laying wire with ZSK's Technical Embroidery Systems can be found at many other fields of application.

Exemplary products amongst others are:

- heated working- or outdoor clothing,
- luminous textiles to improve security or comfort,
- heated steering wheels,
- heated car seats,
- embroidered circuits, to integrate electrical functions into clothing,
- infrared heating systems,
- protective systems for safes
- electromagnetic shielding for tap-proof chambers



Field of application - laying fibers

A radically new technology to build up reinforcement fabrics is the free orientation, placing and fixing of reinforcement materials through an embroidery machine.

It can be used in applications where the production of components or textile structures requires the stitching of variable-geometry ply stacks, where fabrics need to be reinforced locally, or where fabrics must be assembled.

Various materials like carbon-, glass- and aramid fibres, wires etc. can be processed. Single layered rovings are fixed to the base material by stitching.

During the process, the base material is moved by the pantograph, enabling to lay rovings in any direction and quantity.

TFP - Tailored Fiber Placement

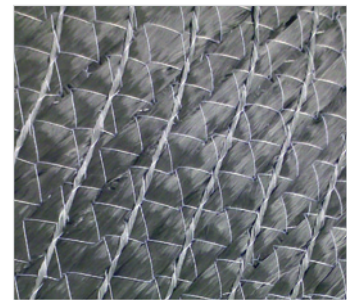
Another major advantage of this new process is to be able to lay the rovings according to the distribution of forces within a structural component.

100% reproducibility speaks for itself and is accomplished by the following:

- automatic preform production
- high dimensional accuracy
- low mass tolerance
- reliable identical laying roving

This cost effective process is driven by high stitching speed on one hand and multiple laying heads on a machine.

In comparison to other textile technologies the expensive loss of materials is kept to a minimum. Accordingly the problem of waste disposal is very little.



TECHNICAL EMBROIDERY SYSTEMS - OPTIONS

The following options are available for all ZSK Technical Embroidery Systems which guarantees a significant degree of automation.

- 1 Active wire and fiber supply systems**

Two supply systems can be installed on each laying head.
Each supply system can take wire or fiber rolls up to 10kg.
- 2 Automatic unwinding function**

The advantage to supply wires and fibers from big rolls bears the disadvantage that the materials has to be guided to the zig-zag layer by pipes and that limits the possible rotation to 360 degrees. Because of this limitation wires could not be laid in spirals for example. ZSK has solved this problem by an automatic unwinding function!
- 3 Automatic change of different medias**

The change between two different medias like two different wires or fibers and wires is fully automatic. (Patent pending.)
- 4 Pneumatic media trimmer**

The pneumatic trimming system cuts all kind of fibers and even stronger wires.
- 5 Wire hit detection system**

If a laid wire is hit by the needle the machine stops and indicates the affected laying head. The defective part can be marked to be sorted out. In many branches like in the production of car seat heating systems this function is obligatory.
- 6 Fast fiber laying**

For large objects a fiber laying speed up to 5m per minute can be reached
- 7 Carbon protection for the electronics**

All electronic devices of a ZSK laying machine are protected against carbon dust.
- 8 Pneumatic clamping and stretching system**

A very flat designed clamping and stretching system for the carrier material.
- 9 Automatic pull trough system**

The carrier material is automatically pulled trough from roll to roll, back to front.
The automatic pull through system is available for all one head laying systems.

 - Carrier material (woven, non woven, foils) up to 140cm wide is pulled automatically from back to front.
 - The roll and re-roll stands follow the side movement of the pneumatic frame which allows to transport and re-clamp the carrier material in any position of the frame.
 - Transporting and re-clamping is possible in back to front and vice versa direction in the middle of a wire laying design.
 - The length of a wire laying design is just limited to the length of the carrier material available on the roll.
 - The unrestricted changing of the transporting direction of the carrier material allows to have the start and end of a wire for example at one point for easy connection.
- 10 Semi automatic pull trough system**

In case of multi head laying systems (up to 11 laying heads) the carrier material is pulled trough from left to right. In connection with a pneumatic clamping and stretching system and the motor supported roll up the
- 11**

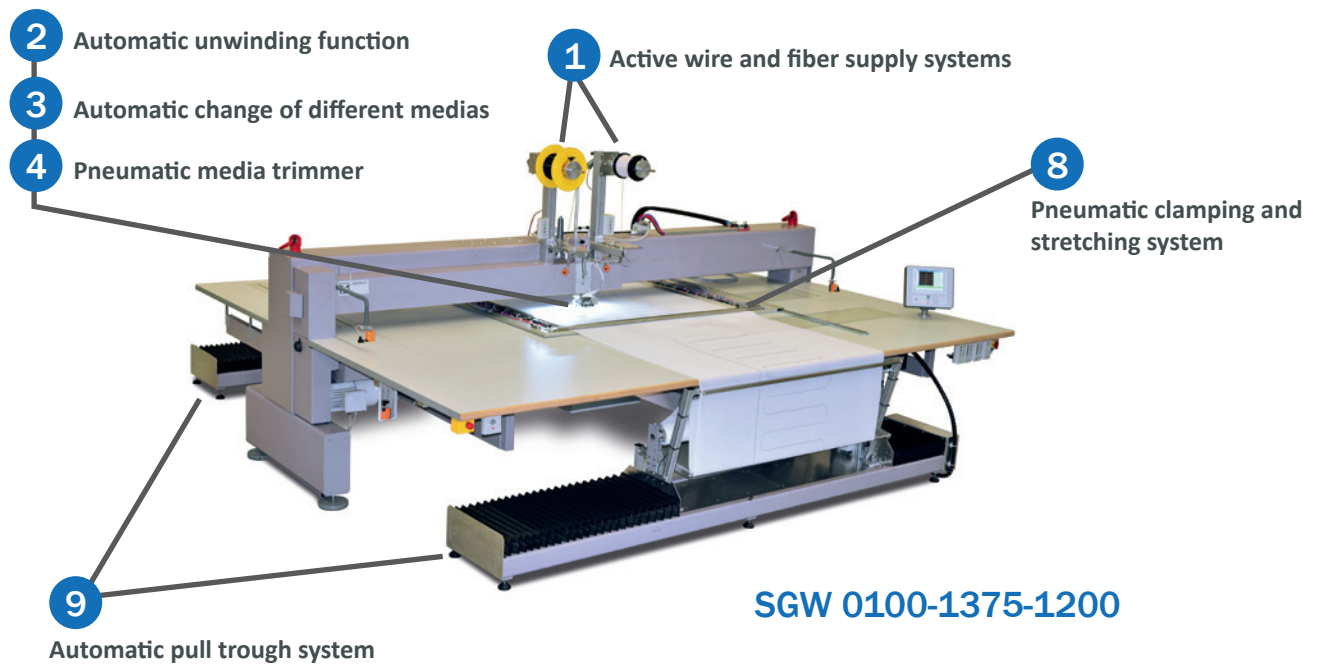
loading time takes less then 2 minutes.

Automatic bobbin changer
The pneumatic bobbin changer for the under thread is equipped with a magazine for 7 full and one empty bobbin for up to 8 hours of running time.

TECHNICAL EMBROIDERY SYSTEMS - MACHINES

Machine models and laying sizes for technical embroidery machines

	JCW 0100-500-700	SGW 0100-1375-1200	ZCW 0400-1800-1500
No of laying heads	1	1	4
Head distance	n.a.	n.a.	1.800mm
Fabric feeding direction	1 x back to front	1 x back to front	left to right
Fabric feeding system	automatic	automatic	semi - automatic
Max. laying depth	600mm - multiple	1.100mm - multiple	1.200mm
Max. laying width	450mm	1.200mm	4 x 1.800mm
Max. fabric width	620mm	1.400mm	1.400mm
Max. frame traveling l/r	450mm	1.375mm	2.150mm
Machine net size l/w	1.600 x 1.800mm	4.100 x 3.800mm	13.000 x 3.500mm



	YCW 0600-1180-1500	ZCW 0800-900D-1500	ZBW 1100-750-1200
No of laying heads	6	8	11
Head distance	1.180mm	900mm	750mm
Fabric feeding direction	6 x back to front	left to right	left to right
Fabric feeding system	automatic	semi - automatic	semi - automatic
Max. laying depth	1.400mm	1.200mm	900mm
Max. laying width	6 x 700mm	8 x 900mm / 4 x 1.800mm	11 x 750mm
Max. fabric width	6 x 900mm	1.400mm	1.100mm
Max. frame traveling l/r	700 mm	2.150mm	950mm
Machine net size l/w	8.900 x 3.600mm	13.000 x 3.500mm	12.700 x 2.900mm



ZCW-0800-0900D-1500

We are where you are - worldwide!

ZSK Stickmaschinen GmbH can access an experience acquired in 130 years of textile machine construction. From 1952 till today nearly 200 different models of classical multi-head embroidery machines with up to 56 embroidery heads were developed and build at Krefeld.

Since 1995 we develop embroidery systems for technical applications.

For a long time we support successful lots of companies with technically accomplished solutions for often very complex problem statements and innovative products.

Today ZSK Stickmaschinen GmbH is the largest European distributor of embroidery machines with its headquarter in Krefeld, Germany.

ZSK has more than 75 sales and service partners worldwide. Trained experts and technicians are the basis of our international After Sales Service. In case you will need a spare part sometime, we guarantee fast and global delivery and installation.

ZSK Stickmaschinen GmbH

Magdeburger Str. 38 - 40
47800 Krefeld
Germany

Phone: +49 2151 444-0

Email: zsk@zsk.de

www.zsk.de



www.facebook.com/zsk.stickmaschinen



www.youtube.com/user/zskfilm