

Carl

ZSK STICKMASCHINEN Customer Magazine

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The ZSK Embroidery Technology Magazine

Embroidery | News | Technology | People | Trends | ZSK Worldwide



Welcome at Texprocess 2026

Dear Reader,

Embroidery is changing – faster than expected.

Digitalisation, sustainability and the continued rise of personalisation are opening up new possibilities, while also raising new questions. How can an embroidery business remain competitive? How should investments be made with the future in mind?

In this issue of CARL, we aim to offer some answers – in terms of machinery, processes and the trends currently shaping the industry.

We introduce the SPRINT R9 and the RACER Compact TWIN, explore how lean management can improve productivity, and take you into the growing field of smart textiles – from healthcare to animal health.

We invite you to visit us at Texprocess 2026 in Frankfurt. We look forward to speaking with you.

Yours sincerely,

Carl

Legal

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38 Coloreel

Every colour, every stitch, an endless variety of colours. A colour gradient in the embroidery – from dark blue through turquoise to white, flowing seamlessly with no visible transition.



18 Lean Management

Lean management isn't about working faster. It's about working smarter – whilst safeguarding what really generates revenue: the time the needle spends in the fabric.

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Small in footprint, big in potential
SPRINT R9 and
RACER Compact TWIN



Four new developments, one clear approach

At Texprocess 2026, ZSK presents four new developments designed to meet a wide range of requirements – all based on a shared principle: engineering and design developed together from the outset in an integrated process.

The Sprint NX is a worthy successor to the successful Sprint 6 series. Equipped as standard with servo motors, the new T8-3 controller including frame selection, and a range of additional features, it sets a strong benchmark in the entry-level segment.

The Sprint 9 series – comprising the Sprint 9 with F head and the Sprint R9 with R head – together with the RACER Compact TWIN, follow a distinctive design principle: the drives are suspended downward from the machine frame.

The result is maximum embroidery stability and noticeably more free space for textiles at the sides.

The RACER Compact is engineered to pass through standard room doors. In the Sprint 9 series, thread trimmers and catchers are driven as standard by modern BLDC motors – ensuring precise, quiet and low-maintenance operation.

Four machines, one clear ambition: uncompromising quality, well-considered engineering, and long-term reliability for your embroidery business.



SPRINT NX

Technical Data

Properties	SPRINT NX	SPRINT 9	SPRINT R9	RACER Compact TWIN
Heads	1	1	1	2
Colours / Needles	12	18	18	18
Speed (max.)	1.200 rpm	1.200 rpm	1.700 rpm	1.200 rpm
Embroidery Field Border	460 × 310 mm	500 × 360 mm	500 × 360 mm	990 × 360 mm
Largest Mighty Hoop	12" × 15"	16" × 13"	16" × 13"	16" × 14"
Head Distance	-	-	-	495 mm
Dimensions (W×D)	1.160 × 943 mm	1.316 × 996 mm	1.316 × 996 mm	1.625 × 1.000 mm

18 Needles on 400 mm

-The new RACER II models



RACER 4S II and RACER 6S II

Two new models – and a notable step forward for embroidery production. With the RACER 4S II and 6S II, ZSK brings full 18-needle colour capacity to a compact 400 mm head spacing for the first time.

Previously, this level of needle capacity was limited to machines with 495 mm spacing. From 2026 onwards, 4- and 6-head users can benefit from it as well – with fast colour changes and reduced setup times.

The practical advantage is clear: in environments with frequent design changes, you can work continuously with 18 colours. A portion of the needles remains assigned to core colours, while the others can be set up flexibly for each day's jobs. The result is less reconfiguration, more machine uptime and improved efficiency.

In combination with fast colour change and a high-speed catcher, colour change times are reduced further. In tubular operation, both models run at speeds of up to 1,400 stitches per minute.

Also included as standard is the premium cap frame – suited for cap embroidery, promotion, workwear, sports applications and demanding personalisation from the outset.

Our conclusion: greater flexibility, less downtime and full colour capacity – with a measurable impact on overall productivity.

Technical Data

Properties	RACER 4S II	RACER 6S II
Heads	4	6
Colours / Needles	18	18
Speed (max.)	1.100 rpm	1.100 rpm
Embroidery Field Border	1.600 × 500 mm	2.400 × 500 mm
Embroidery Field Tubular	405 × 395 mm	405 × 395 mm
Head Distance	400 mm	400 mm
Dimesions (W×D)	2.580 × 1.330 mm	3.380 × 1.330 mm

Your brand, your machine



Embroidery machines as individual as your business

Customisation is no longer a niche topic – it has become a relevant competitive factor.

More and more embroidery businesses and textile decorators are recognising that their machines are not only production equipment, but also a reflection of their company identity.

When customers are guided through production, the aim is to make this visible – with a machine fleet that reflects the brand. This is where ZSK offers options for individually configured embroidery machines.

SPRINT 9: Individual film designs for a distinct visual presence

With the new SPRINT 9 series, ZSK introduces new possibilities for machine personalisation.

The side panels can be fitted with individual film designs – from company logos and brand colours to complete corporate designs. This allows each machine to become a clearly recognisable element within a showroom or production environment.

Implementation is straightforward and enables businesses to transfer their visual identity directly onto the machine.

RACER series: Defining colour

With the RACER series, ZSK extends these options further. Individual colour and design requirements can be realised through high-quality powder coating.

Whether gold, black or a precise corporate colour, the machine becomes a distinct unit. At the same time, powder coating provides a durable and resilient surface suited to everyday production conditions.

A practical perspective

An embroidery machine that delivers consistent results while reflecting the company's own design language is a consideration for many businesses. ZSK addresses this by combining technical reliability with options for visual customisation.

For those looking to personalise their machines, ZSK offers solutions tailored to specific requirements – from initial concept through to the finished system.

The ZSK R-Head

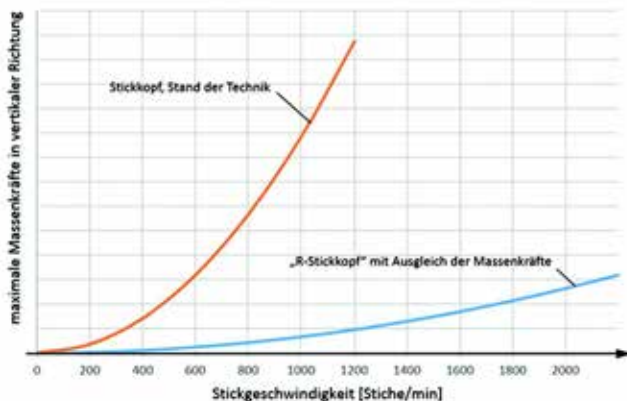
A step change in embroidery head technology

With the R head, ZSK has introduced a new development that has been recognised with the Texprocess Innovation Award. It represents more than an incremental improvement – it redefines the performance range of industrial multi-head embroidery machines.

Speed, reconsidered

While conventional multi-head embroidery machines typically operate around 1,200 stitches per minute, the R head reaches speeds of up to 2,000 stitches per minute. At the same time, the dynamic forces acting on the head are lower than those on a conventional head running at 600 stitches per minute.

This is made possible by a unique first- and second-order mass balancing system, which significantly reduces vibration and torsional oscillation. The result is a running behaviour more commonly associated with precision-engineered engines than with embroidery machinery.



Low noise at full performance

The smooth operation of the head also leads to noticeably lower noise emissions. For businesses operating in continuous production, this means reduced noise levels, lower wear and less stress on both materials and operators. An optimised hook-to-needle distance further reduces thread breaks and skipped stitches, contributing to consistent embroidery quality.



Electronic presser foot – Intelligent Presser Foot (IPF)

At the core of the R head is an electronically driven presser foot. Needle and presser foot are controlled independently, allowing the presser foot to be set to four different height positions.

Whether processing fine silk, thick terry fabrics or more demanding 3D embroidery applications using foam, the IPF adapts precisely to the material.

Designed for serviceability

From an operational perspective, the R head is fully removable and can be replaced by the user. In the event of maintenance or service, extended machine downtime can be avoided – the head can be exchanged and production can continue.

The ZSK R head combines high speed with smooth operation, precise material control and a practical approach to maintenance. It reflects a consistent focus on engineering detail and production reliability.



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Embroidery on Demand

How embroidery businesses turn single pieces into a business model

Personalized products have become a billion-dollar market. Monogrammed hoodies, customized caps, personalized teamwear—today's consumers expect every item to be uniquely theirs. For local textile decorators, this represents the greatest opportunity in years, provided that production can keep pace with the click in the online shop.

From Print on Demand to Embroidery on Demand

The concept has a clear predecessor. Over the past fifteen years, print on demand has shown how a traditional craft can evolve into a digital business model: the customer designs online, the order flows automatically into production, and a single item is produced, finished and shipped – without stock, minimum quantities or lead times. Platforms such as Shopify, Printful and Spreadshirt have created an ecosystem in which shop, design and production are closely integrated.

Embroidery on demand transfers this principle to embroidery. What has long been standard in printing is now becoming feasible for stitched decoration: batch size of one, high quality, economically viable, produced locally. The difference compared to print lies in the product itself. Embroidery offers texture, perceived value and durability. It elevates the product – and supports a higher price per piece.

From concept to finished product: with ZSK, the entire embroidery workflow is just one click away. ”

Mass series are produced in Asia. The last mile belongs to the local decorator.

The market: why personalisation is becoming the norm

The drivers are clearly identifiable. First, consumer behaviour: individuality has shifted from a luxury to an expectation, particularly among customers who buy online. Second, e-commerce infrastructure: product configurators, live previews and 3D visualisation are now available in virtually every shop system. Third, cost pressure in mass production: offering discounts on large runs becomes less competitive compared to multiple smaller, customised orders. Fourth, sustainability: on-demand means producing what is sold – without overproduction, disposal of returns or idle stock.

Studies on the global personalised apparel market indicate sustained double-digit growth over the coming decade. Locally decorated products are expected to gain a disproportionate share, as short lead times and flexible quantities are difficult to deliver from overseas production.

Applications: where embroidery on demand proves effective

Four areas stand out. In corporate environments, company clothing, workwear and employee gifts form a stable core business – every new logo, employee or department generates demand. In sports and teamwear, jerseys, training apparel and caps are personalised with names, numbers and sponsors, often at short notice and in small quantities. In events and merchandising, applications range from weddings and graduation groups to festivals and branded pop-ups. In direct-to-consumer retail, shops offer monograms, personalised lettering and custom designs directly to end customers.

What these segments share is a high degree of variation, small batch sizes and short delivery times. Businesses that manage this effectively tend to build long-term customer relationships.



The requirement: from click to finished embroidery

The model depends on a consistent process chain. An order placed in an online shop must pass through production without manual intervention: transferring order data, converting the design into an embroidery file, optimising production sequencing, setting up the machine, embroidering, finishing and shipping.

Every break in the process reduces margins. Every manual digitising step delays the break-even point. And every paper-based workflow turns batch size one into a loss.

The challenge is not the individual embroidery machine. It is end-to-end digitalisation – from the customer's click to a finished, ready-to-ship textile.

The ZSK approach: a complete technology stack

ZSK approaches embroidery on demand not as a single product, but as an open technology stack. The web API provides the interface to shop systems: Shopify, WooCommerce, proprietary configurators or ERP systems transmit orders directly into production – including design, garment type, placement and quantity. The auto digitising API converts motifs automatically into embroidery programs, removing the need for manual digitising of individual items. Production planning consolidates incoming orders into efficient sequences, ensuring optimal machine utilisation. Integration via MY.ZSK 4.0 provides real-time performance data – utilisation, stitch counts, downtime and thread breaks – making operations transparent and manageable.

Where single-piece production reaches its personnel limits, ZSK automation extends capacity. Roll2Roll, Roll2Cut and robotic solutions load and unload up to six machines simultaneously – without additional operators. Unlike traditional mass production, this automation is designed to handle variation rather than repetition.

Batch size one must be as economical as batch size one hundred. Otherwise, the model does not hold.

Batch size 1 = batch size 100

Ultimately, the calculation defines viability. A business that can produce a single item at the same unit cost logic as a batch of one hundred gains a decisive advantage – because it sells flexibility rather than scale. This is where the ZSK components interact: setup times are reduced through barcode-based workflows and automated digitising, production planning minimises idle time between jobs, automation decouples machine utilisation from operator availability, and the web API removes manual order entry. What remains is the pure embroidery time – and in batch size one, this does not differ from batch size one hundred.

Made in Germany, applied globally

Embroidery on demand is not a niche. It is the response of local decorators to globalised mass production – and to customers who expect individuality. ZSK provides the machines, software and automation as an integrated system. The embroidery business contributes craftsmanship, proximity to the customer and a focus on quality. Together, this forms a model comparable to what print on demand brought to the printing industry – now applied to embroidery. Made in Germany.



ZSK Online Shop



Mighty Hoop and HoopMaster

Frames and accessories for ZSK, Tajima, Barudan, Ricoma, Happy, SWF and Brother PR embroidery machines.



HoopTech

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Positioning in practice

Why embroidery and DTF businesses adopt the ZSK EPS positioning system

Anyone working in textile decoration is familiar with the challenge: every design must be placed with precision – whether hooping a garment for embroidery or positioning a DTF transfer on a heat press.

Even small deviations can lead to rejected items, customer complaints and lost time. This is where the ZSK EPS positioning system changes day-to-day operations.

How it works

EPS uses an LED projector to display guide lines, grids, logos and placement areas directly onto the working surface of a heat press or hooping station. Following a WYSIWYG (What You See Is What You Get) approach, the operator can see exactly where the textile and design need to be positioned.

Once set up, each configuration can be saved as a template and recalled within seconds for repeat orders – via tablet, USB drive or barcode scanner.

Key advantages

Consistent quality at any volume: whether producing a single item or a run of 1,000 pieces, placement remains consistent. This avoids the typical loss of accuracy as volumes increase and supports reliable results.

Time savings: manual measuring, marking and checking are no longer required. Setup times per job are reduced significantly, which is particularly relevant for workflows with many small orders.

Reduced dependency on skilled labour: operators can achieve precise placement without extensive training. The system is intuitive to use and integrates easily into existing processes.

Less waste, more control: incorrect placement is largely avoided. This reduces material waste, minimises complaints and helps maintain margins, particularly when working with higher-value textiles.

Flexible integration: whether used on a heat press for DTF transfers or at a hooping station for embroidery, EPS adapts to different work environments and scales with the business.

Conclusion

The EPS positioning system is not an auxiliary tool, but a practical component of production. It improves speed, accuracy and consistency, while reducing dependency on individual operator experience. For businesses looking to maintain reliable placement processes, it provides a structured and repeatable approach.



Frame Selection with T8-3

Does my design fit the frame? The new frame selection function of the T8-3 control answers this question directly on the display – before the machine starts.

The principle is straightforward: the operator selects the hooped frame from an extensive list, loads the design and immediately sees whether it fits. The embroidery design is visualised within the frame boundaries, removing the need for manual tracing. A green frame indicates that everything is within range, while a red frame shows that the design exceeds the limits – allowing adjustments before stitching begins.

The result is reduced setup time, no risk of stitching into the frame, and improved productivity. Particularly in environments with frequent job changes and varying frame sizes, the function helps to save time and avoid costly operating errors.

Frame selection is available exclusively on servo-driven ZSK machines equipped with the T8-3 control. A practical upgrade with measurable impact in daily production.



Faster returns than expected

The return on investment (ROI) of a new embroidery machine

When considering a new embroidery machine, the first focus is often the purchase price. A more strategic view looks at productivity.

A modern ZSK embroidery machine typically recovers its investment within a few years through time savings, higher utilisation – and supportive tax treatment such as accelerated depreciation.

Accelerated depreciation since 2025

Since 2025, businesses in Germany have again been able to apply declining-balance depreciation to movable assets.

Instead of spreading the purchase price evenly over the useful life, higher depreciation amounts can be claimed in the early years. The result is a lower tax burden and improved liquidity at the stage when the machine is being introduced into production. In practice, part of the investment is offset through this tax effect.

Many small seconds – measurable impact

With a fully allocated cost rate of €65 per hour and 15 different designs per machine per day (220 working days per year), small time savings accumulate:

- » **Frame recognition with the T8-3:**
reduces manual tracing from around two minutes to approximately 20 seconds per design. Time saved: about 25 minutes per day ≈ €5,960 per year.
- » **.z00 format with colour information and cone matching:**
designs load within seconds instead of assigning DST files manually to each needle. Time saved: around two minutes per design ≈ €7,150 per year.
- » **Faster colour changes:**
around two seconds saved per change ≈ €1,430 per year.
- » **10 % higher embroidery speed:**
with six hours of net stitching time per day, this equates to roughly 36 minutes of additional output ≈ €8,580 per year.

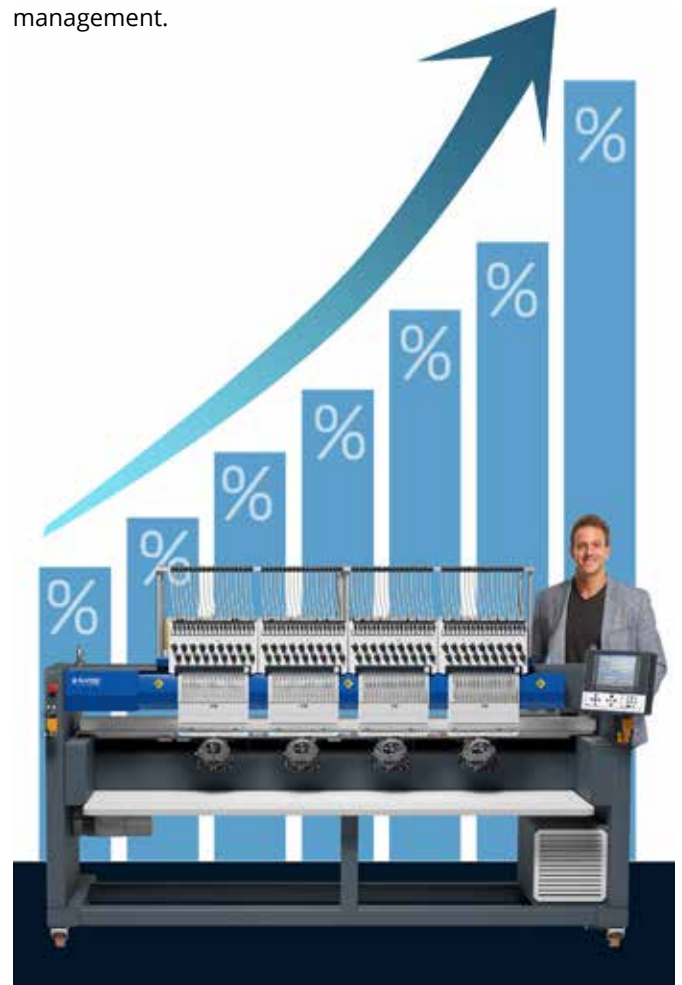
Combined, this results in approximately €23,000 in additional productivity per machine per year – based on four incremental improvements alone.

Selling used, financing new

A well-maintained used ZSK machine retains a stable resale value. The proceeds can often cover the initial payment, with the remaining investment financed.

This leads to a straightforward comparison: monthly financing costs versus monthly productivity gains (around €1,900). In many cases, the financing cost is lower, meaning the machine contributes positively from the outset.

In addition, a new machine includes a manufacturer's warranty, reducing the risk of unexpected service costs or downtime. Investing in new equipment is therefore not only a productivity decision, but also a form of operational risk management.



Customized Patches 2026

A growing market meets automation

Individualisation is one of the defining consumer trends of our time – and patches are among its most visible expressions.

Whether as insignia on military and police uniforms, logo badges in corporate fashion, limited designs in streetwear collections or personalised emblems for fans, customised patches are experiencing strong growth in 2026.

A market on the rise

Industry analyses estimate the global market for embroidered and customised patches at around 450 to 550 million US dollars. Forecasts suggest average annual growth rates of between 5 and 7 per cent in the coming years, with particularly strong momentum in the defence, workwear and premium streetwear segments.

Within the broader custom apparel and branded merchandise market, which is valued in the tens of billions globally, patches are among the faster-growing product categories.

This development is driven by several underlying trends: personalisation at single-item level, shorter product cycles in fashion, the need for visible brand identity in corporate wear, and the renewed relevance of badges as a design element in streetwear. In addition, demand from public sector

organisations continues to increase, particularly for durable, high-quality embroidered emblems.

From manual production to automated processes

Meeting this demand economically presents a challenge. Individualisation requires small batch sizes, often combined with high overall volumes.

ZSK addresses this with a consistent focus on technological development. The R embroidery head, introduced as a new concept, was recognised with the Texprocess Innovation Award for its combination of precision, speed and flexibility.

In 2026, this was followed by further recognition: the US trade publication Impressions Magazine named the ZSK RACER R1W “Best New Embroidery Machine” at the III Awards.

With the RACER R1 – Roll2Roll, ZSK presents a response to the increasing demand for patches: a fully automated continuous embroidery system that processes material roll by roll, provides 18 colours per head, supports embroidery fields of up to 500 × 500 mm, and reaches speeds of up to 2,020 stitches per minute. An electronic presser foot, ergonomic thread stand and integrated LED status indicators support stable operation in continuous production.

This approach transforms patch production from a manual process into a scalable industrial workflow – without losing the ability to individualise. It demonstrates how a market trend can be translated into a consistent production model through coordinated technology and automation.



RACER R1 - ROLL2ROLL

LEAN MANAGEMENT

Less wasted time, more stitching time



Every minute counts in embroidery production. Machines are either running – or they are not. The minutes that go missing at the end of the month are often hidden between production runs, during hooping, thread changes or searching for the right frame.

Lean management does not mean working faster. It means working more effectively – and protecting the time that actually generates value: the time when the needle is in the textile.

The principle is simple: make lost time visible and eliminate it systematically. In every operation, there are typical sources of time loss – unnecessary movement, waiting times, duplicated work, avoidable transport, excess inventory, defects and unused employee knowledge.

7 sources of loss within a company



scrap



idle time



duplication of effort



unnecessary transport



excess inventory



unnecessary movement



unused employee knowledge

None of these is immediately obvious. They only become visible when processes are observed deliberately and viewed from an external perspective.

The spaghetti diagram – making movement visible

One of the most established tools is the spaghetti diagram. Mapping the movement of an operator over the course of a day often reveals an unexpected result: between machine, storage areas, frame racks, thread cabinets and desk, a single operator may cover several kilometres – largely unnoticed.

Each of these movements represents time not spent stitching. Reducing distances, positioning tools and materials closer to the machine, and improving accessibility can increase productive time without any additional equipment.

Time loss affects people, not machines

A modern embroidery machine operates reliably. Time is lost around it: searching for designs, waiting for the next garment, inefficient hooping, thread changes or preparing backing materials.

Lean management therefore asks a consistent question: which actions bring us closer to the finished order – and which do not? And what needs to change so that the next operator achieves the same result as the most experienced colleague?

Improvement as a routine

The most sustainable step is also one of the simplest: a short, regular exchange with those working on the machines every day. Fifteen minutes, once a week. Three questions: what worked well this week? Where did we lose time? What will we do differently next week?

No formal framework is required – only a willingness to listen and to improve one thing at a time. Over the course of a year, this leads to more than fifty incremental improvements.

The best machine is only as effective as the process around it. Lean management makes the difference between activity and productivity. ”



The good news is that many common sources of time loss in embroidery already have practical solutions. From standardised hooping systems and thread cones positioned directly at the machine to digital job planning, there are small building blocks that free up time every day.

The key is to first understand where time is actually lost. Only then does it become clear which tools are effective – and which investments simply shift the problem elsewhere.

The goal is simple: that the people working on these machines spend their time on embroidery – not on working around processes, searching for missing materials or waiting for decisions.

ZSK supports this approach with practical solutions.



10 Quick Wins that deliver immediate impact

Quick Wins

EPS HoopStation

Standardised hooping reduces setup times and eliminates positioning errors.

Thread Trolley

Thread cones positioned directly at the machine – no more trips to the thread storage during colour changes.

Production Planning Software

Schedule jobs digitally instead of managing them in spreadsheets – idle time between jobs is reduced.

.z00 filr format with thread colours

Colour information is embedded in the design – eliminating errors when loading .dst files.

T8-3 with frame recognition

The machine visualises the frame – no manual tracing and reduced setup times.

Pre-Cut Backing Materials

Backing is supplied ready-cut at the hooping station – eliminating the cutting step entirely.

Deeper storage shelves (RACER series)

Space for the next garments directly at the workstation – fewer movements, smoother workflow.

Barcode Scanner

Load designs via network scan instead of walking with USB drives.

Terminal Software - Analyzer

Analyse and reduce stitch density – fewer stitches, fewer thread breaks, higher speed (density as a KPI).

Status Lighty on Embroidery Machines

Machine status visible at a glance – support needs are immediately identifiable

Chaos in embroidery production?

ZSK Production Planning brings structure to the workflow

Every embroidery business knows the situation: orders accumulate, deadlines approach, and production management spends more time planning, reconfiguring and clarifying than on actual operations.

This is where ZSK Production Planning applies – a digital planning solution developed specifically for embroidery businesses, helping to move from reactive problem-solving to structured production.

Why production planning is essential

Without systematic planning, significant inefficiencies arise: machines are reconfigured multiple times a day, threads are changed repeatedly, and setup times reduce margins. With structured planning, the machine is ideally threaded once per day, after which suitable jobs are processed in sequence. The result is less downtime, higher output and more reliable delivery schedules.

What ZSK Production Planning does

The software supports the entire digital workflow – from job planning to completion feedback at the machine. It provides a transparent overview of orders, including status, machine assignment, thread setup and frame configuration. Jobs are assigned automatically based on order size, embroidery type (tubular, cap, border), number of heads and available thread colours. Production times are calculated based on

stitch counts per hour.

This allows production managers to focus on operations rather than administrative coordination.

Technically flexible – system-independent

The solution runs on a tablet at the machine and can be connected to different embroidery systems. Its full potential is realised in combination with ZSK machines and the .z00 format, where all functions integrate seamlessly. The web-based terminal links each machine to central planning and provides live status updates, error messages and completion feedback.

For IT integration: import via JSON or Excel

Orders can be imported via Excel/CSV files or JSON, enabling straightforward integration with existing ERP or shop systems. Job data, sub-orders, stitch times, quantities, garment types, frames and embroidery positions are transferred, scheduled and allocated automatically – including daily thread lists per machine as an Excel export.

Conclusion

For businesses aiming to reduce setup times and make better use of resources, digital production planning is a practical requirement. ZSK provides a solution designed for both operational use and system integration.



Cap is the new premium

Why 3D embroidery is now boosting sales

What has developed in the United States under the term “puffy embroidery” into one of the fastest-growing segments of the decoration industry is now gaining momentum in Europe: 3D embroidery on caps. Streetwear brands, sports clubs, craft breweries, agencies and event organisers increasingly use caps to express brand identity – with raised, structured designs that add visual and tactile value.

A shift towards premium

The market is moving away from low-cost mass products towards higher-quality, decorated caps. Customers are willing to pay for well-executed 3D embroidery. For embroidery businesses, this creates margin potential that is often no longer achievable with standard garments such as T-shirts. Caps, when executed well, can become a profitable product category.

The ZSK premium cap drive – in series production since 2025

In response to this development, ZSK introduced its premium cap drive into series production in 2025. It is now standard on all new machines, with the exception of the Classic series.

The design focuses on the requirements of 3D embroidery: stable running characteristics, minimal vibration and precise control. The result is cleaner stitch formation, improved volume in raised designs and consistent repeatability.

A further feature is the slim tubular arm design. Without a conventional picker mechanism, the machine can embroider areas lower on the cap brim – where many prominent designs are placed.

Upgrade option and system choice

Existing ZSK machines in the SPRINT and RACER series can be upgraded with the premium cap drive kit. For businesses evaluating equipment options, it represents a technical consideration in favour of systems designed for precise and consistent cap embroidery.

Reconsidering cap embroidery

Cap embroidery is sometimes regarded as complex. With appropriate equipment, suitable frames, well-prepared designs and operator training, it can be integrated reliably into production.

For many businesses, this creates an opportunity to expand into a product segment with distinct positioning. ZSK provides the technical basis for this development.



A subtle force – Vitor Digitizing

Behind every successful trade show presence is a team working in the background.

Today, we would like to highlight someone who has shaped our exhibitions with a distinctive creative input over the past years: Vitor from Vitor Digitizing.

Vitor is a reliable partner who works without seeking attention, yet plays a key role in the final result. Whether working on chenille embroidery, detailed patches or complex 3D cap designs, discussions with him are always on equal terms. He listens carefully, asks the right questions and consistently contributes considered, often unexpected ideas.

One of his particular strengths is adapting designs to regional contexts. What resonates in southern Germany may differ in Scandinavia – and Vitor has a clear sense of how colours, shapes and motifs translate across markets. This results in exhibition concepts that are not only visually consistent, but also appropriate to their audience.

A look behind the scenes

Many ideas develop over extended discussions: sketches are exchanged, samples are produced, evaluated and refined. In this process, Vitor acts as a creative counterpart, contributing experience and attention to detail – from stitch definition and material selection through to the final result.

Thank you, Vitor

For your perspective, your ideas and your reliability. Your contribution is an integral part of our exhibition work.



Contact

Vitor Digitizing

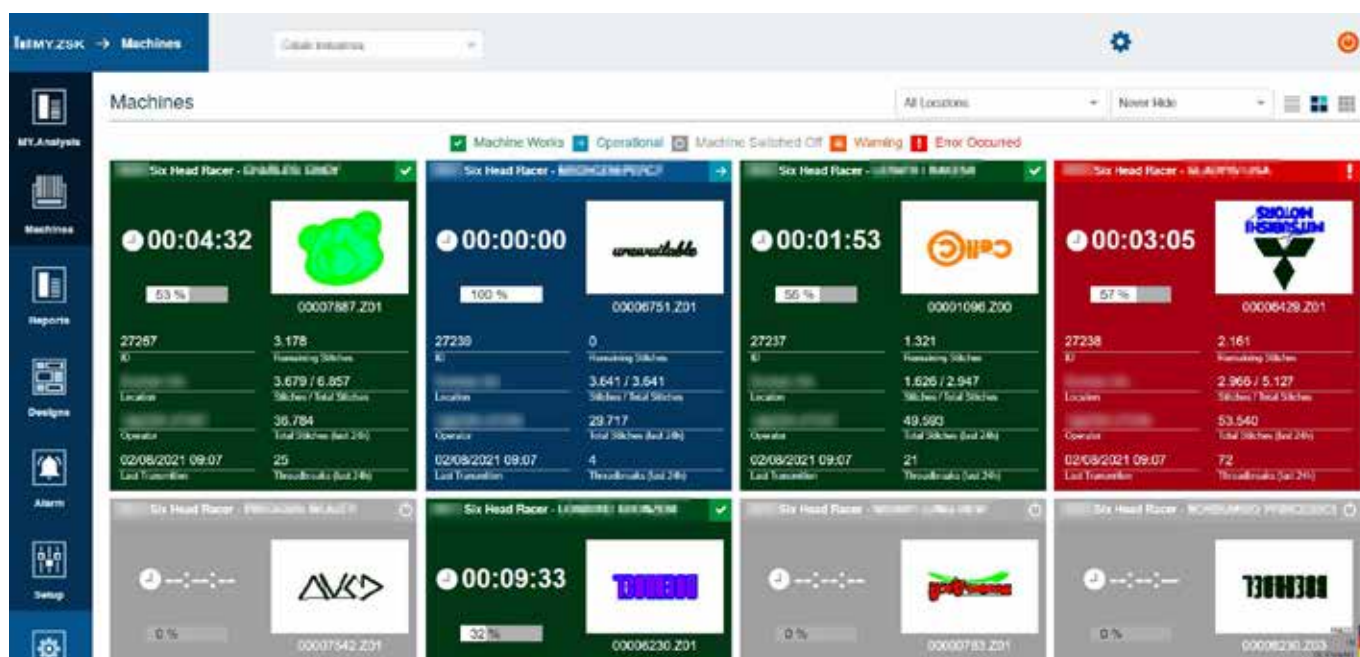
Web: www.vitordigitizing.net

Your machine fleet in real time

MY.ZSK 4.0 - knowing what's going on

It is a typical production day. Machine 3 is running, several jobs are in progress, and the next delivery is scheduled. In the background, there are questions that are rarely asked directly:

What is actually running on machine 3 right now? How many stitches has operator A produced today? Which job was truly the most profitable last week?



Those who can answer these questions manage their operation with greater clarity.

In many embroidery businesses, the answers come not from data, but from experience and intuition. This often works well. But experience has its limits: it does not reveal what changes gradually over time.

MY.ZSK 4.0 addresses this gap by translating production data into a practical basis for decisions.

Respond earlier

Machine 7 is running. At first glance, everything appears normal. Yet the thread break rate has increased slightly over recent days – barely noticeable in daily operations, but clearly visible in the data.

Those who recognise this trend can schedule maintenance. Those who do not may eventually face unplanned downtime.

Planned maintenance requires time. Unplanned downtime costs time, orders and trust.

Make better decisions

A new order arrives. The question is immediate: which machine should take it?

In many operations, the decision is pragmatic – the machine that happens to be available. A more informed approach considers performance: which machine has handled similar jobs reliably? Which is currently operating under optimal conditions?

Not everything that appears unremarkable is without consequence. ”

The answers lie in the data, rather than in individual experience that may not always be accessible.

Develop processes more effectively

A shift shows an unusual number of stops. The cause is not immediately clear: machine, material or process?

Without data, the discussion often remains uncertain.

With data, the situation changes: questions become more precise, relationships become visible and solutions more tangible. Discussions become more factual, more balanced – and more likely to lead to actionable conclusions.

What data makes visible

MY.ZSK 4.0 captures not only the current state, but also the development over time. Which jobs actually required the time initially estimated? Which machine types perform particularly efficiently with certain designs? Many of these questions only arise in retrospect – and can only be answered if data has been recorded consistently from the start.

The dashboard provides real-time information on machine status, stitch counts, thread breaks and efficiency metrics, accessible from any device. Environmental parameters such as air pressure are also recorded and integrated into production logs.

Integration into existing processes

MY.ZSK 4.0 integrates into existing structures – either as an on-premise solution or cloud-based. Via OPC UA, it becomes part of modern Industry 4.0 environments. Open interfaces allow integration with ERP systems, shop platforms and individual analytics tools.

Those who can see gradual change are able to act in time. MY.ZSK 4.0 makes these developments visible.

SMART TEXTILES

From Thread to Function



Anyone placing their hands on a heated steering wheel in winter or sitting on a pre-warmed seat is already in contact with a smart textile. Heating wire, precisely laid onto a carrier fabric and fixed with zigzag stitches – invisible beneath leather and fabric.

Smart textiles are created using embroidery technology. From simple heating elements to sensor systems that capture and transmit body data. This is embroidery not for appearance, but for function – and it has been produced for years, in high volumes.

This leads to an obvious question: how does it work?

Getting started is simpler than expected

The first step can be as simple as changing the thread. Conductive yarns – available from manufacturers such as Amann or Madeira – can be processed on any ZSK machine.

The workflow remains the same. The outcome changes: embroidery designs that conduct electrical current. Contact surfaces. Interfaces between textile and electronics.

For those who want to experience the principle directly, ZSK offers a kit that allows users to create a playable piano with embroidered keys.

Are specialised machines required?

For entry-level applications, no. The standard ZSK F embroidery head used in the SPRINT and RACER series is sufficient for working with conductive yarns and integrating LEDs.

For more advanced applications, the ZSK K and W speciality heads provide additional capabilities – both based on embroidery techniques that have been established in textile production for decades.

The K head follows the chenille principle: a hook needle forms continuous loops that are soft, flexible and suitable for direct contact with the body.

The W head follows a placement principle: a material is guided along a programmed path and fixed in place. Whether heating wire, carbon fibre or optical fibre, the underlying method remains the same – only the function changes.

Both head types are specified at the time of machine purchase. For businesses planning to develop smart textile applications, this decision is part of the initial setup.





What emerges from this

3E Smart Solutions, ZSK's development unit for smart textiles, has been working for years to translate these possibilities into practical applications – in collaboration with companies exploring new products and markets.

One example can be found in animal health.

- » A horse harness with integrated ECG electrodes transmits vital data wirelessly via Bluetooth – washable, breathable and comfortable for the animal.
- » A therapeutic wrap for dogs uses red and near-infrared light for post-operative treatment – implemented as a flexible textile rather than a rigid device.
- » Protective leg wraps for horses with embroidered motion sensors detect early changes in gait patterns.
- » Heated dog blankets distribute warmth evenly through embroidered heating elements at low voltage – suitable for direct contact.

What these applications share is their origin: they are produced on ZSK embroidery machines, using workflows already familiar to embroidery businesses.

The animal health sector is growing globally and requires exactly the properties that functional embroidery can provide: softness, adaptability, washability and precision.

The same principles apply to human applications. The Neosmartnest, developed by Kluba Medical, is a baby cradle with embroidered electrodes for ECG monitoring of newborns. Soft, flexible and without hard edges – characteristics that derive directly from embroidery technology.

A new field – with familiar tools

Embroidery businesses interested in this area can explore it together with 3E – from initial concept through to prototype development.

The machines are already in place. The workflow is already familiar.

The limitation is not the technology.

First of its kind - EP-30

When embroidery machines handle electronics

Imagine an embroidery machine that not only processes thread, but also places, fixes and connects electronic components on textiles with precision – automatically, stitch by stitch.

This is the capability of the EP-30 placement device from ZSK, a patented development that extends the scope of smart textile production.

The EP-30 is mounted as an add-on module directly onto the embroidery head of a ZSK industrial machine, effectively transforming it into a production system for flexible electronics. A key feature is the usable area: component placement is possible across the entire embroidery field, which in industrial systems can extend over several metres. This opens applications ranging from heated workwear and sensor-integrated sports garments to medical wearables.

At the core of the system is a placement mechanism combining tweezer-based handling, a toothed belt feeder and an electromagnetic brake. Four encoder-controlled stepper motors ensure repeatable positioning accuracy. Component carriers are supplied via interchangeable cassettes and fed automatically into the process.

The parameters for compatible electronic components are clearly defined: carrier base dimensions range from 12 × 12 mm up to 36 × 48 mm, with carrier thickness between 0.8 and 1.6 mm. Including mounted components, a total height of up to 9 mm is supported. Electrical contact is established via 1.2 mm drill holes, while fixation is achieved through 1.6 mm openings.

What defines the EP-30 is its integration into established embroidery workflows. Designs are created as usual, while the machine carries out placement and fixation within the same process. This enables flexible electronics to be produced at a scale defined by the embroidery field – an approach that significantly expands the application range of embroidery technology.



Unmatched Depth Scaling Success with ZSK

When it comes to large embroidery depths, ZSK Stickmaschinen stands alone in the market.



CMCW 0200 - 900D Embroidery field depth max. : 2,400 mm



JGW 0100-650 Embroidery field depth max.: 700 mm

A fully modular system provides nine field depths: 500, 700, 1,000, 1,200, 1,400, 1,500, 2,000, 2,500 and 3,000 mm. Each machine can be configured to match the intended use – from compact applications to large-format technical embroidery.

A central element is the Q-frame design, developed to support efficient lateral material feed. Depending on the production layout, two feed directions are available: side-to-side or back-to-front.

Mobile support rollers allow controlled re-tensioning of the material throughout the embroidery process. In larger fields, consistent material tension is essential for stable stitch quality and repeatable results.

Flexible feed options also enable integration into automated production lines. Downstream processes such as fabric buffering or cutting systems can be connected, supporting a continuous workflow from material input to finished cut parts without manual intervention.

In addition, dedicated fabric feeding and transport systems allow up to three material layers to be processed simultaneously. An integrated edge control system ensures precise positioning of each layer, which is particularly relevant for multi-layer applications in technical textiles, composites or automotive environments.

The system combines modular field depths, adaptable material handling and integration into automated processes – supporting scalable production concepts in industrial embroidery.

Digital Thread Tension

Precision for demanding embroidery applications

In technical embroidery, thread tension is a decisive factor for process stability and product quality.

Whether working with fibres, conductive yarns for smart textiles, heavy aramid threads for protective equipment or delicate applications on sensitive substrates, conventional mechanical tension systems quickly reach their limits. Digital thread tension for ZSK embroidery machines addresses these requirements directly.

The system controls upper thread and fibre tension electronically, providing the required setting for each individual stitch. While mechanical spring systems operate with a fixed compromise, the digital solution adjusts tension dynamically – aligned with yarn type, stitch type and material thickness. The result is consistent stitch formation, even when conditions change within a single design.

This is particularly relevant in technical embroidery. When processing composites or multi-layer materials, properties can vary across different areas. Digital thread tension responds to these changes in real time, including when working with sensitive fibres such as glass fibre or carbon.

For operations with high quality requirements, the system also supports repeatability. Tension settings are stored digitally and can be recalled precisely at any time. Job changes can be carried out without manual readjustment, reducing setup times and initial scrap.

Integration into existing ZSK machines is straightforward. Operators benefit from an intuitive control interface that makes complex tension profiles accessible, even without extensive experience.

Where process reliability and material protection are critical, digital thread tension provides a consistent foundation for controlled and repeatable embroidery results. In technical applications, it represents a measurable step forward in process control.





CarbonPath

Integrated software platform for automated carbon fibre placement

FROM 3D MODEL TO FINISHED EMBROIDERY PROGRAMME – IN A CONTINUOUS DIGITAL WORKFLOW.

CarbonPath is ZSK's in-house software platform for Tailored Fibre Placement (TFP). It combines structural analysis, automated path generation and volume optimisation within a single, continuous process – from CAD geometry to the finished embroidery programme in EPCwin.

Where multiple standalone tools and manual interfaces were previously required, CarbonPath provides an integrated approach: import your component, calculate load conditions, generate load-optimised fibre paths and export the data directly for your ZSK embroidery machine.

Key benefits at a glance

End-to-end workflow

From STEP import and FEM analysis to the embroidery programme – all within one platform.

Automated path generation

Load-optimised fibre paths are calculated automatically and exported as DXF data.

Iterative optimisation

Continuous feedback between structural analysis and fibre placement until target load parameters are achieved.

Volume optimisation

Material usage of fibre and epoxy resin is reduced to a minimum while maintaining required performance.

The CarbonPath-Workflow

In six clearly defined steps, CarbonPath takes you from the CAD model to the finished component programme. The iterative process ensures that the component meets the required load specifications with precision.

1

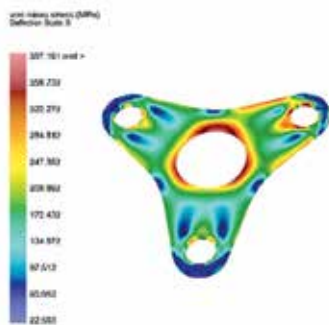


Import 3D-Model (STEP)

Load your input model in STEP format.

CarbonPath supports complex 3D geometries and prepares them for subsequent structural analysis.

2



Initial Structural Analysis (FEM)

First finite element analysis of the original model: stress distribution and load zones are visualised and form the basis for path optimisation.

3



Automates Fibre Paths (DXF)

CarbonPath automatically generates load-optimised fibre placement paths. Output is provided in DXF format – ready for embroidery programme creation.

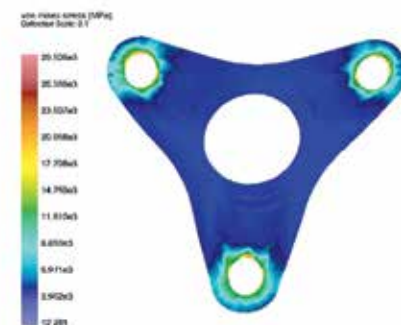
4



Volume optimisation

Material volume is optimised based on fibre quantity and epoxy resin requirements. The resulting geometry can be used for mould production or integration into larger assemblies.

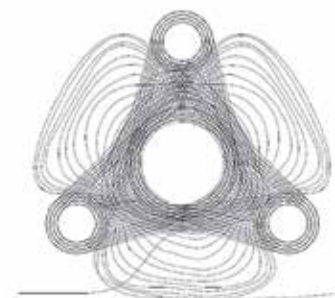
5



Iterative Structural Analysis

FEM analysis based on the placed fibre trajectories. If deviations occur, the process returns to step 3 automatically – reinforcement is applied precisely in critical areas until target load conditions are met.

6



Export & Embroidery Program (EPCwin)

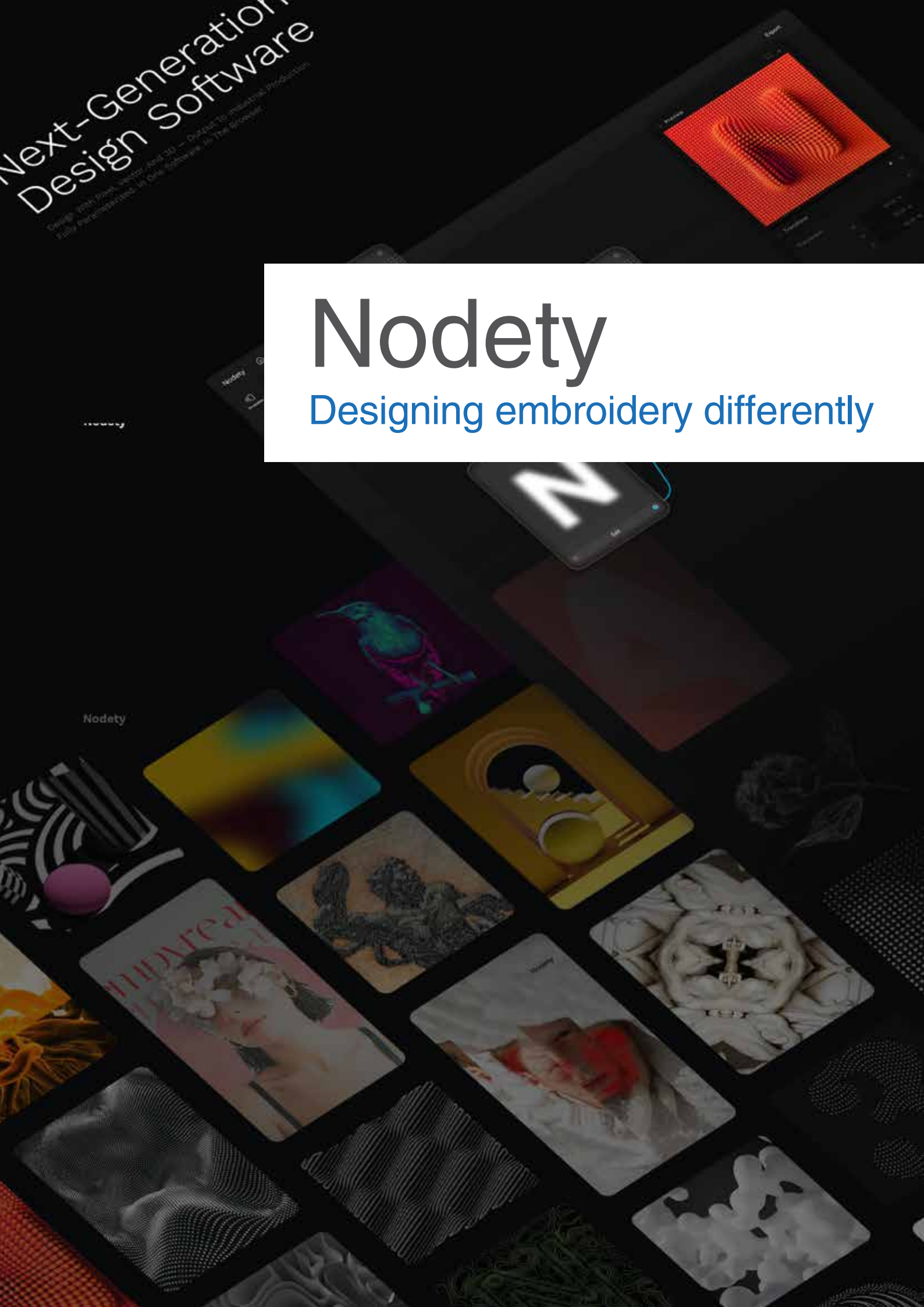
The final fibre paths are exported and converted directly in EPCwin into an embroidery programme for your ZSK machine. Seamless integration into your existing production workflow.

Next-Generation
Design Software

Design with Power, Vector, and 3D — Output To-manual Production
Fully Parametric, in Dark Software, in The Browser.

Nodety

Designing embroidery differently



What makes Nodety distinct in embroidery

In the fashion industry, embroidery is more than decoration — it is a marker of identity, quality and differentiation. Yet in many companies, the path from concept to finished embroidery file remains time-consuming and prone to error. Any change in size, text or perspective typically requires rebuilding, recalculating and exporting the design again. Nodety addresses this at a structural level.

Design parameters that remain flexible

In Nodety, a design is not a fixed file, but a set of interconnected steps and rules — a non-destructive workflow. When a parameter changes, whether stitch density, colour palette, font or motif size, the result updates immediately. All dependent steps adjust automatically. Variations that previously required hours can be created within seconds. This is particularly relevant for applications with recurring changes: variable text, seasonal collections or standardised logos in multiple versions.

Three inputs, one production-ready output

Nodety brings together pixel, vector and 3D inputs within a single platform. An uploaded image can be converted directly into an embroidery design, with control over contrast, level of detail and colour definition. 3D objects can be rotated in perspective, with the embroidery pattern recalculated automatically. Text input is transformed into editable embroidery files, retaining their style even as content changes.

This range of inputs provides designers with options that extend beyond conventional embroidery software.



Production files without intermediate steps

Nodety outputs production-ready embroidery files rather than basic conversions. The software optimises stitch paths, reduces unnecessary points and generates continuous stitching sequences without manual adjustment. The result is fewer stitches, shorter production times and consistent quality across jobs.

Exports include ZSK transport code (.z00), DST and SVG formats, allowing integration into existing workflows.

For fashion companies that use embroidery as a strategic design element, Nodety changes the balance: greater creative flexibility with reduced production effort — delivered through a browser-based system without installation.

Software

ZSK TERMINAL – Your free entry into embroidery



Anyone purchasing a ZSK embroidery machine now receives ZSK TERMINAL as a permanent, free addition.

This is not a trial with an expiry date, but a deliberate decision: to enable productive work from the first day.

The free base version covers essential daily tasks – Design-Stock as a structured design library, the converter for format changes (converting a DST file into a Z00 file with all ZSK-specific information in a single step), EasyText for lettering and names, and PhotoStitch for photographic embroidery. For businesses sourcing designs externally and adding occasional text, this provides a solid foundation.

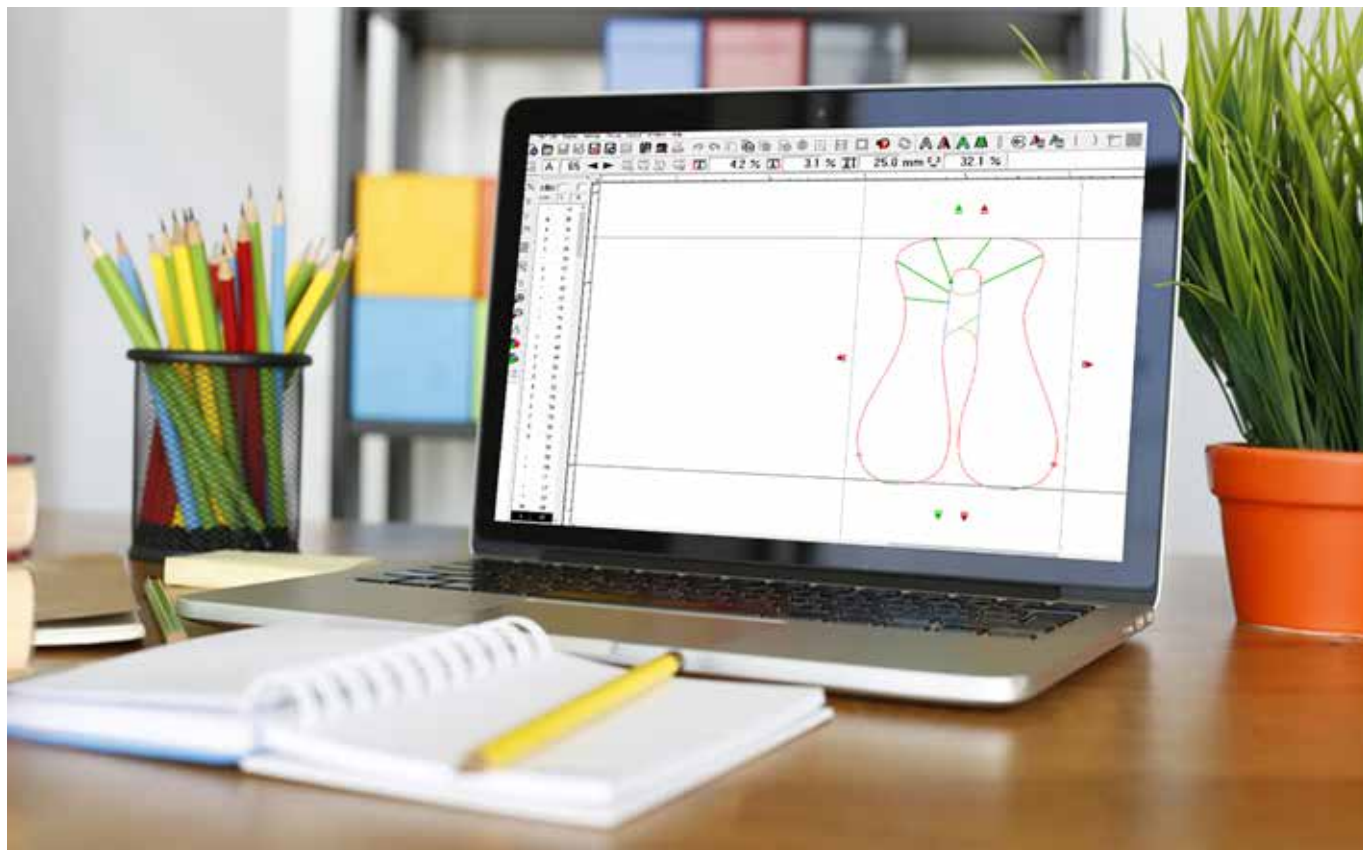
The Pro features extend these capabilities further. Three recent additions are particularly relevant in daily operations: QR code printing directly from the design library. With a single command, the label printer produces a tag containing all relevant design data.

The operator scans, loads and embroiders – avoiding mix-ups and manual input errors.

The Analyzer calculates stitch density in stitches per mm². While technical in nature, it introduces a measurable KPI for evaluating designs. Excessive density can lead to fabric distortion, needle breakage and increased costs. The Analyzer highlights these issues before production begins.

The Cost Estimator completes the workflow. It reflects actual operating costs – machine, energy, labour and thread – and calculates realistic production costs per design. Pricing decisions based on estimates can erode margins. A structured calculation provides a clearer basis for consistent pricing.

BasePac 10 – for in-house digitising



TERMINAL manages and organises production. Businesses that want to create their own designs from images and vector data require BasePac 10 – ZSK’s established digitising software, available in three versions: Base for lettering, editing and organisation, Premium for digitising logos and designs, and Professional for advanced applications such as sequins, beads and complex patterns.

In combination with a ZSK embroidery machine, BasePac operates with full compatibility. Output in Z00 format transfers stitch data, colour changes, needle assignments, parameters and application stops – ensuring that the machine processes the design exactly as defined.

The monogram module is one of the more comprehensive solutions available: individual lettering styles, combined initials and custom monogram sets can be created parametrically and reused. The team name function simplifies workflows for garments with varying names. In combination with

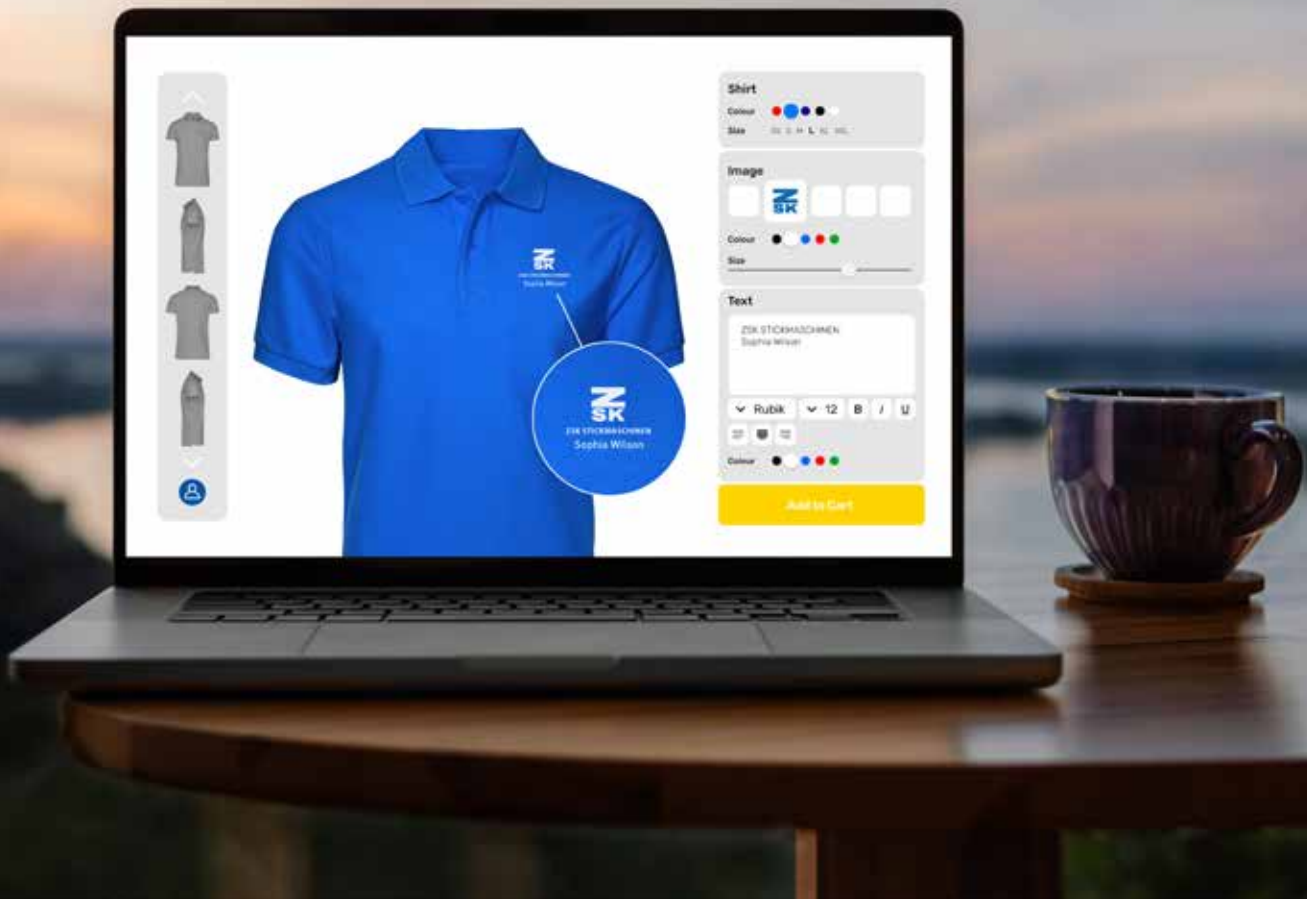
the machine’s monogram mode, based on BasePac data, personalisation can be carried out directly in a retail environment.

Learning and development

Each BasePac licence includes access to an interactive learning platform with video-based content – including step-by-step modules, self-assessments, tutorials and workbooks.

In addition, online training sessions and on-site courses are available through the ZSK Academy in Krefeld.

A capable machine is only one part of embroidery production. The other part takes shape on screen – supported by appropriate software and practical expertise.



Technology & Innovation

ZSK Web API – embroidery personalisation via interface

How to integrate customised embroidery directly into your online shop – automated, in real time and ready for production.

Personalised products continue to gain relevance, and embroidery is regarded as a high-quality method of decoration. The challenge lies in transferring customer input into production without manual intervention for each order.

ZSK addresses this with its Web API: a REST interface that connects your online shop or web application directly to ZSK embroidery technology.

Communication is handled via standard HTTP requests in JSON format – the established approach for modern web interfaces.

How it works

A customer selects a product in the shop, enters the desired text and receives a photorealistic preview of the embroidery at the click of a button – generated in real time using ZSK TrueView technology.

In the background, your system sends the design data as a JSON request to the API. The API returns a high-resolution PNG preview for the customer and, if required, a production-ready embroidery file in formats such as TC, TBF, DST or DSZ.

From customer input to machine-ready file – automated and without media breaks.

Capabilities

The API supports more than basic text generation. It allows up to nine monograms per design, a range of font options, adjustable text curvature from concave to convex, multiple positioning options and different embroidery quality levels (density), from entry-level to premium.

Information endpoints provide access to available font lists, detailed embroidery parameters and design dimensions – supporting the development of advanced product configurators.

Comprehensive documentation with code examples is available online, enabling integration within a short timeframe, often within a few days.

Cloud or on-premise – flexible deployment

The Web API is available in two deployment models.

As a hosted cloud solution, ZSK manages operation, maintenance and scaling, allowing for rapid deployment without additional infrastructure.

The on-premise option runs on your own servers, keeping all data within your network and providing full control – suitable for organisations with specific compliance or data protection requirements.

Both options offer the same functionality.

Who it is for

The ZSK Web API is designed for businesses looking to scale embroidery personalisation: online retailers, textile decorators and embroidery operations aiming to offer a modern customer experience while automating production.

Integration is based on standard web technologies and is compatible with all major programming languages and shop platforms, including Shopify, WooCommerce, Magento or custom-built solutions.

Learn more

The full API documentation, including code examples, is available at www.embroidery-api.com.

For personal advice on both deployment options, please contact our software team at www.zsk.de.

What is ...?

Web Api

An API is a defined interface through which systems communicate with each other. A Web API is an interface that is accessible over the web (HTTP) and enables data exchange between applications.

REST

REST is a specific type of Web API. A REST API follows defined principles and uses standard HTTP methods such as GET, POST, PUT or DELETE to retrieve, create or modify data.

JSON

JSON (JavaScript Object Notation) is a simple, standardised format for data exchange between systems. It is structured in a readable way using key-value pairs to represent information clearly.

ZSK TrueView-Technologie

ZSK TrueView technology generates a photorealistic preview of embroidery designs in real time – directly within the shop during the ordering process. Colours, text and placement are displayed as they will appear on the textile, allowing customers to assess the result before production.



Coloreel

Every Colour, Every Stitch,
Unlimited Colour Range

A gradient in embroidery - from dark blue to turquoise to white, flowing seamlessly without visible transitions. Or a textured surface resembling fur or grass, with organic colour variation in every stitch.

Or even photorealistic motifs that were previously limited to print - now combined with the texture and durability of embroidery.

These effects are not achievable with conventional embroidery. With Coloreel, they are..





One thread. All colours.

The Coloreel system produces all colours required for a design using a single thread and a single needle.

At the centre of the system is the Instant Thread Colouring Unit (ITCU), which colours a white base thread during the embroidery process using a CMYK-based method, at speeds of up to 200 millimetres per second.

The result is a virtually unlimited colour palette, precise colour accuracy, smooth gradients, defined striping effects and organic textures.

The so-called noise effect introduces additional design options: controlled variation in colouring creates a more dynamic appearance, adding depth and movement in a subtle way.

Gradients can be not only reproduced, but also controlled – from clearly defined transitions to intentionally irregular structures.

Changes in production

With Coloreel, the focus in production shifts. The design is no longer limited by available thread colours – instead, colour becomes part of the design process itself.

Colour changes lose their relevance. Thread inventory can be reduced, as a single white base thread replaces multiple coloured spools. Setup times are reduced accordingly.

Processes that previously required preparation become part of the continuous workflow. As colour information is read directly from the embroidery file, the risk of errors is also reduced. Manual thread changes are no longer required, eliminating a common source of mistakes.

An extension, not a replacement

Coloreel does not replace conventional threads – it complements them.

The multi-thread function allows digitally coloured Coloreel thread to be combined with traditional threads within a single embroidery design. Colours outside the CMYK range, metallic effects, specialised materials or specific thread types can still be integrated using additional needles.

Digital colouring and conventional threads work together within the same process. Existing workflows remain unchanged, while new possibilities are added.



Short runs and single items

If a specific corporate colour is required, there is no need to wait for delivery or order minimum quantities. Coloreel generates the colour directly – whether for a single item or a larger run.

Two consecutive jobs with completely different colour schemes can be produced without thread changes or setup. The machine reads the colour information directly from the design file.

In combination with Nodety, name, colour and motif can be varied from item to item without changing the production process. Each piece can be unique without additional effort.

Personalised products can achieve higher price levels – and with Coloreel, this added value is created without proportionally increasing production costs.

Designing colour with Coloreel Studio

Coloreel Studio is available for colour design at no additional cost. The software imports existing DST embroidery files and allows colours, gradients and effects to be assigned directly – without creating a new embroidery file or additional programming.

Existing designs can therefore be adapted quickly to create new visual results.

Consistent quality

The coloured thread produced by Coloreel is washable at temperatures of up to 95°C.

Stitch appearance becomes more uniform and surface quality improves, as unnecessary tie-off stitches are reduced through the use of a continuous thread.

The result is not only a broader colour range, but also a consistently refined embroidery finish.

Brand & Partnership

Once ZSK, Always ZSK – Why Choosing ZSK is a Choice for Life

Made in Germany, long-term support, true process expertise – and a sense of belonging within the ZSK family. Buying an embroidery machine is a bigger decision than it may seem at first glance. It's not just about a price on a quote; it's about years, sometimes decades of production. It's about quality, service commitment, and a partner who will still be by your side in five, ten, or twenty years.

This is exactly where the difference between a mere supplier and ZSK begins.



Made in Germany, Made in Europe

ZSK develops, designs, and manufactures in Krefeld. Every machine, every assembly, and almost every spare part is European-made – backed by over 150 years of family tradition. In an era where supply chains have become fragile and “Made in Europe” has once again become a clear promise of quality, this offers you a real competitive advantage: short distances, reliable quality, and German engineering.

Long-Term Spare Parts Supply

ZSK stands for investment security. Machines from the 1990s are still running at our customers' sites today – and they are still being supplied with original spare parts. This is no coincidence, but a core principle: when you buy from ZSK, you don't just get a machine; you get a commitment for decades.

Not Just Machines – Processes and Solutions

ZSK does not deliver “boxes”; we deliver solutions. Whether it's appliqué, smart textiles, technical embroidery, personalization via Web API, or fully automated order picking – our engineers understand your process before they recommend a machine. Together with you, we work backwards from the end product. The result: systems that perfectly fit your market, your team, and your customers.



Welcome to the ZSK Family

Those who choose ZSK choose more than just a product. Our customers are part of a global community of embroiderers, decorators, industrial partners, and innovators – connected through training at the ZSK Academy, personal points of contact, joint trade fair appearances, and a service network that is there when it matters most.

“Once ZSK, always ZSK” is not just a slogan; it is our reality. We accompany you for a lifetime.

More Than a Purchase – A Relationship – ZSK for Life!

Price is what you pay. Value is what you receive over the years: reliable quality, competent partners, machines that keep running and running – and the peace of mind that you made the right decision.

Welcome to ZSK. Welcome home.

Embroidery is not just embroidery

Why your customers will pay more — if you stop selling on price

Every morning, your customer puts their logo on their chest. Not just a sticker, not a quick print — but an embroidered brand identity that represents them at every client meeting, on every construction site, and in every boardroom. This is the moment that matters. And this is exactly where it is decided whether your work is perceived as an interchangeable service or as premium craftsmanship.



The truth is: embroidery is not just embroidery. A logo rushed through production with 4,000 stitches and low density might look similar at first glance to a high-quality, expertly digitized design with 10,000 stitches, rich density, and clean underlays. But in terms of comfort, durability, visual depth — and above all, brand impression — they are worlds apart. Longer run times mean higher costs. But they also mean: color brilliance, sharp contours, and a three-dimensional effect. Precisely what turns a logo into a brand.

Sell the WHY — Not the Stitch Count

Never start with the “price per 1,000 stitches.” Start with: “Your logo represents your company. We ensure it makes exactly the impression you want to project.” The technical details come later.

Talk about the Goal — Not the Machine

Your customer isn't buying stitches. They are buying public image, professionalism, and brand recognition. Ask them: “Who sees your employees — end customers, decision-makers, partners? How do you want them to perceive your brand when they see your logo?” This opens up budgets that pure price discussions can never reach.

Ask Questions First — Then Make an Offer

Before you calculate: How many pieces per year? What material? Will the item be washed, worn, or tested? Only once you understand the use-case should you recommend premium digitizing, appropriate density, and thread weight — as a solution, not as a surcharge.

Explain Innovation Simply

“A standard program makes your logo visible. Our premium offering makes it unmistakable — even after 50 washes.” Problem -> conventional solution -> your superior solution. Three sentences, and the customer immediately understands what they are paying for.

Talk about Value — Not Price

If the customer asks, “How much does the embroidery cost?”, respond with: “What does it cost you if your logo looks like a discount brand after three months?” Your customer wants to wear their brand with pride. Give them that — and the price discussion dissolves.

Don't sell the stitch. Sell the brand your customer carries into the world. Embroidery is a craft.

Innovations



TPU Embroidery

New Dimensions for Textile Products: Design and Function in One Process

TPU-coated threads (Thermoplastic Polyurethane) can be processed on ZSK embroidery machines just like standard yarn.

The real difference, however, emerges in the second step: through a targeted heat-press application, the TPU coating melts and forms a sealed surface. Depending on the pressure and temperature applied, the finish can be high-gloss, matte, “peach-skin” tactile, or a heavy-duty laminate.

Embroidery finished this way is abrasion-resistant, water- and moisture-proof, yet remains flexible. This eliminates the need for a separate coating stage. In combination with Tailored Fibre Placement (TFP), reinforcement and surface finishing can be achieved in a single pass. Typical applications include watch straps, shoe uppers, waterproof outdoor textiles, and technical protective clothing.



Braille Embroidery

Tactile Labeling, Industrially Scalable

The Braille module in BasePac is the world’s only embroidery software with a certified Braille function—officially recognized by the World Blind Union.

Operation is simple: enter the text via keyboard, and the software automatically generates the norm-compliant dot pattern. Production can be carried out on all modern ZSK machines.

These Braille dots reach a convexity of 0.4 mm and are both wash-resistant and iron-proof. Developed based on the pioneering work of Stickerei Kampmann, the process has been tested and validated by visually impaired users.

Typical areas of application include workwear in the health-care sector, hospitality textiles, uniforms for the public sector, and safety markings on protective clothing. Braille embroidery fulfills current UN and EU accessibility directives. Furthermore, many countries offer subsidies for inclusive technologies—providing an additional economic incentive for businesses.



OPS 3 at the Automotive Interiors Expo Stuttgart

From June 23 to 25, 2026, ZSK will showcase the new Optical Positioning System III (OPS 3) at the Automotive Interiors Expo in Stuttgart. Following its world premiere at Texprocess in Frankfurt (April 21–24, 2026), the system will be presented in Stuttgart with a specific focus on automotive interior applications.

While the proven OPS 2 relies on 2D contrast detection for perforations, the OPS 3 opens up a whole new dimension through topographic 3D scanning. It detects height differences on the material surface and aligns embroidery designs dynamically—whether for embossed logos, weld lines, or prints. For premium car seats, this means exact placement despite material stretch or shrinkage, zero manual setup, and drastically reduced waste.

The system is compatible with all ZSK machines equipped with MCP 35 electronics and achieves a positioning accuracy of up to 0.1 mm. Experience the future of automotive embroidery live in Stuttgart!

New Features of the OPS 3

- » Dynamic Line Scan Sensor – Captures surfaces during movement instead of using static photos.
- » 3D Height and Structure Recognition – Detects embossings and weld lines through material depth.
- » Edge Detection – Scans physical outer edges for perfect lockstitches at the border.
- » Alcantara/Suede Filter – Eliminates error sources caused by fiber dust on challenging fabrics.
- » Zero-Waste Efficiency – Automatically corrects material distortion after lamination.
- » Click-to-Stitch via QR Code – Scan-to-select design, minimal setup time, and zero operator errors.

YouTube: Video about OPS III
Simply scan the QR code





New Catcher and Thread Trimmer Motor

Longer Lifespan, Less Downtime

The new BLDC motor for catchers and thread trimmers

The more color changes and thread trims your embroidery machine performs, the more frequently the catcher and thread trimmer motors must be maintained or replaced. This is because the carbon brushes in traditional BDC (Brushed DC) motors wear down with every switching operation.

To address this, ZSK now offers an optional brushless BLDC motor. By eliminating the brushes, the main wear-and-tear component is removed entirely—meaning the motor lasts significantly longer, even under the most intensive use.

Your advantages:

- » Significantly longer motor lifespan – ideal for frequent thread trims.
- » No brush wear, resulting in less maintenance and reduced downtime.
- » Quieter and cooler operation.
- » Fully optional – the proven BDC motor remains available

This upgrade is particularly rewarding for embroidery businesses with high throughput, numerous appliqué stitches, or complex multi-color designs.

Contact us today – we would be happy to advise you.



New Flexibility - ZSK WLAN Stick

Wireless Design Transfer

Connect simply, faster, and more reliably

With the ZSK WLAN Stick, you can transfer embroidery designs wirelessly to your ZSK machine—directly from your PC, tablet, or smartphone. Unlike conventional off-the-shelf USB sticks, this device was developed specifically for ZSK control systems: simply plug in, connect, and you're ready to go—no drivers, no extra software, and no IT expertise required.

Design transfer is handled via an integrated web interface that works on any device with a browser. The stick can either create its own local Wi-Fi network or be integrated into your existing company network. If the company network fails, it automatically switches back to standalone mode to ensure production continues.

Using simple drag-and-drop, you can upload, delete, or organize designs conveniently from your desk. Its industrial-grade design is engineered for continuous operation, maximum reliability, and low heat generation—a tailor-made solution that significantly simplifies your daily production routine.



Strategic Partnership

ZSK Expands Bead Embroidery Portfolio Strategic Partnership with Deshun and Dahao.

ZSK is setting new standards in the embroidery industry: In close cooperation with technology partners Deshun and Dahao, ZSK will offer the seamless integration of Deshun beading devices on ZSK embroidery machines starting in 2026. Available configurations will include 2-bead setups (Q1) and 4-bead / 2-sequin setups (Q3)—each fully optimized for the proven MCP 35 control system.

With this move, ZSK is consistently pursuing a dual strategy: customers benefit from both the in-house ZSK development for single and double beads and the high-performance Deshun units (offering a wider variety of bead shapes). This freedom of choice allows for maximum flexibility and opens up new creative possibilities in textile decoration.

This partnership underscores ZSK's commitment to innovation by creating forward-looking solutions through international cooperation, ensuring that users always have access to the best technology available.

New in the ZSK Shop Groz-Beckert DBxK5 LGR

3D embroidery is trending Thick foams place high demands on the needle.

To meet these challenges, Groz-Beckert developed the new DBxK5 LGR, which is now available in the ZSK Shop.

What makes it special?

The needle features an extended thread groove that reaches all the way into the shank. During 3D embroidery, the needle penetrates deep into the foam—often up to the shank itself. In conventional needles, this can cause the embroidery thread to become pinched between the needle and the material, leading to thread breaks and skipped stitches.

The extended long groove of the DBxK5 LGR provides the solution: the thread lies protected within the groove and remains un-pinched, even when working with thick foams.

The result: Fewer thread breaks, a stable embroidery process, and clean, high-quality 3D embroidery results. If you would like to test the needle, you can conveniently order it via the ZSK Shop.

ZSK Online Shop

DBXK5 LGR FFG 65/9 - Item No.: 574 752

DBXK5 LGR FFG 75/11 - Item No.: 574 753

DBXK5 LGR FFG 90/14 - Item No.: 574 754

Chenille Reimagined

Achieving Unrivaled Effects with the ZSK K-Head

Chenille as a High-Potential Market

Chenille embroidery is back – and with a vengeance. From varsity cardigans to streetwear and premium caps, the fluffy, three-dimensional look is one of the season’s hottest textile trends. For embroidery businesses, this is doubly good news: not only is the market growing, but the chenille segment also allows for higher margins compared to classic flat embroidery. To stand out today, you need more than standard designs – customers are demanding haptics, depth, and unique effects.

The K-Head and the RACER H 0118

This is where the ZSK K-Head truly shines. Unlike conventional chenille heads, it operates with servo motors and freely adjustable parameters – a level of precision and flexibility that is unique in the industry. Loop height, speed, and specialized effects can be adjusted directly at the control panel and saved for every design.

The result: effects that are impossible to achieve with con-



ventional chenille technology. Seamless transitions between different loop heights, fine contours, and moss-stitch textures alongside classic chain stitches – all in a single pass. The RACER H 0118 implements this concept with exceptional performance. As a combo-chenille machine featuring K-Head and F-Head technology, it delivers mass-production quality with maximum creative freedom, making the leap into high-end chenille production fully scalable.

“Fake Chenille” with Cording and Loops

Not every business is ready to invest in a dedicated chenille machine right away. For those looking to enter the market, ZSK offers versatile alternatives: the 3D Loop Device and the Cording/Looping Device. The latter creates “fake chenille” effects by applying and fixing yarn in controlled loops.

This produces a chenille-like appearance with impressive plasticity – without the need for a specialized machine. It requires a lower investment and is fully compatible with existing ZSK systems. It is the ideal starting point to test the market before scaling up to the K-Head and the RACER H 0118.



ZSK Online Shop

Starter Kit Cord/Loop - Right

Item No.: 110 000 2

Starter Kit Cord/Loop - Left

Item No.: 110 000 1

Cord/Loop Device - Right

Item No.: 270 012 912

Cord/Loop Device - Left

Item No.: 270 012 911

Chenille Look at the Touch of a Button

How ZSK is bringing the trend to the cap

Anyone scrolling through the fashion world right now cannot miss one major trend: Chenille embroidery.

Those soft, fluffy letters and motifs reminiscent of American varsity jackets are experiencing a massive comeback. From streetwear labels to custom-designed merchandise collections—the tactile chenille effect is more in demand than ever. Customers love the velvety surface that adds depth and perceived value to any design.

However, until now, production was complex (requiring K-head embroidery machines), often craft-intensive, and limited to specific textiles. Especially on caps—one of the most popular accessories—achieving a clean chenille effect without using patches was considered nearly impossible.

This is exactly where ZSK comes in with the new 3D Loop Device.

This attachment for ZSK embroidery machines generates three-dimensional loops with a chenille look—fully automatically. Loop height and density are programmed directly into the embroidery design or adjusted in the T8 controller, eliminating the need for manual post-processing. Even less experienced operators can immediately achieve consistent, high-quality results.

What makes it special is its versatility:

The system works on border frames, tubular goods, and—as a world first—on cap embroidery machines. With this, ZSK opens up a new business segment: trendy chenille caps in mass-production quality.

By using a second device, even two-color designs are possible in a single pass, increasing both creative possibilities and efficiency. Furthermore, the device is retrofittable—representing a manageable investment with enormous potential.

For embroidery businesses looking to capitalize on trends quickly, the 3D Loop Device is the ultimate tool of the moment: a chenille look, automated, and now available on caps.





Sustainability in Embroidery

Sustainable embroidery technology is more than a trend

Sustainability is no longer a niche topic in the textile industry—it has become a fundamental requirement.

Customers expect responsible production, and companies are looking for ways to make their operations more resilient. In embroidery, it becomes clear that sustainability does not conflict with quality or efficiency – it can support both.

The embroidery machine as a sustainable production factor

The first step towards more sustainable embroidery begins with the machine itself. Modern embroidery systems, such as those manufactured by ZSK, use energy-efficient drives in line with European standards and consistent LED lighting. This reduces energy consumption per embroidery hour and improves the overall carbon footprint of each product.

Sustainability extends beyond the machine. A large proportion of components is sourced regionally, reducing transport distances and supporting local value creation. Solar installations contribute to energy supply at production sites. This approach integrates sustainability not only into the product, but into the manufacturing process as a whole.

Investing instead of maintaining legacy systems

Older embroidery machines often consume more energy and offer lower precision than current models. Investing in new equipment can reduce operating costs and improve productivity. In addition, public funding schemes in Germany may support such investments when energy efficiency is improved.

Equally important is service life. ZSK machines are designed for long-term operation and supported by ongoing spare parts availability. Equipment that remains in use for decades reduces the need for replacement – an important aspect of sustainable production. Durability replaces short product cycles.

Technical embroidery: flax instead of carbon

A relevant example of sustainable innovation is Tailored Fibre Placement (TFP). Fibres are placed precisely where structural performance is required. Material waste can be reduced to around three per cent, compared to significantly higher levels in conventional processes.

Natural fibres such as flax can be used as an alternative to synthetic materials. Research projects and initial applications have shown that flax rovings can be embroidered onto carrier materials with precision, offering a potential alternative to carbon fibre in certain use cases.

Repair, upgrade, extend use

Sustainability in embroidery is also visible at a smaller scale. Embroidered patches can be used to reinforce or repair worn textiles, extending their usable life. The concept of visible mending has gained attention, where repair becomes part of the design. Embroidery combines function and appearance, transforming wear into a deliberate feature.

In industrial personalisation, durability also plays a role. An embroidered motif, mechanically fixed rather than printed, can withstand repeated washing. Products remain in use longer and retain their value.

Sustainable threads as a component

Sustainability also depends on materials. Manufacturers such as Madeira are developing alternatives, including embroidery threads made from recycled polyester or fibres produced in controlled processes.



Combining efficient machinery with appropriate materials contributes to a more sustainable overall process.

Responsibility across the value chain

Sustainability in embroidery is not defined by a single factor, but by the interaction of multiple elements. It begins with machine selection, continues with material choices and extends to how products are used and maintained over time.

The technical possibilities for more sustainable embroidery are already available. The determining factor is how consistently they are applied.

Quilting with embroidery machines

Where needle and thread take new directions

Quilting is experiencing renewed interest – far beyond traditional bedspreads. What was once primarily a handcraft is now a growing segment in industrial textile production.



For embroidery businesses, this opens an application area that is often overlooked: an embroidery machine can also be used for quilting – with capabilities that conventional quilting machines do not provide.

Quilting across applications

The quilted look appears in a wide range of sectors. In fashion, quilted jackets, vests and bags have become established across both casual and premium segments. In automotive interiors, quilted stitching is used for seat covers, door panels and steering wheels. Furniture and bedding applications rely on quilting for both structure and visual quality. Technical textiles use quilting to fix insulation layers, reinforce protective garments or shape functional products.

In home textiles and interior design, demand is increasing for customised solutions – bedspreads, cushions, wall textiles and table runners with distinctive designs rather than standardised patterns.

Why embroidery machines offer advantages

Conventional quilting machines typically use a single thread to produce continuous stitch patterns. This approach is effective for simple geometries such as diamonds or parallel lines. However, when designs require logos, complex patterns or decorative elements, their flexibility is limited.

Embroidery machines offer a different approach: design flexibility. Any pattern that can be digitised can also be quilted. Organic shapes, geometric structures, ornamental designs or lettering can be transferred directly from design software into production.

A further advantage is material flexibility. ZSK embroidery machines can process both embroidery threads and sewing threads. Depending on requirements, this allows for decorative effects, subtle quilting patterns or a combination of both within a single process.

Multi-colour quilting without interruption

With conventional quilting machines, multi-colour designs require manual thread changes and process interruptions. For complex designs, this can quickly become inefficient.

Multi-head embroidery machines handle this automatically. Each head holds multiple needles with different thread colours. Colour changes are performed within seconds, without manual intervention. This enables multi-colour quilting designs to be produced consistently and efficiently.

Large formats and thick materials

Quilting applications often require large working areas. Systems such as the ZSK CMCF 0412-480Qx2.500 provide an embroidery field of up to 2,100 × 2,500 mm per head, allowing large components to be processed in a single step without repositioning.

Material thickness can also be a limiting factor in conventional systems. Quilted structures with multiple layers, thick padding or leather applications can be difficult to handle. Adjustable clamping systems allow different material thicknesses to be processed securely, maintaining stability without damaging the material.

New applications with existing equipment

For embroidery businesses, quilting represents a logical extension. The machine is already in place, the software is available and digitising expertise is established. What is often missing is a shift in perspective: upholsterers, interior designers, fashion studios, automotive suppliers and technical textile manufacturers are all potential customers for customised quilting solutions.

Positioning an embroidery machine for quilting opens access to new markets with relatively limited additional investment – and with the advantage of offering designs that conventional quilting operations may not be able to produce.

Quilting itself is not new. What has changed is how it can be implemented. Embroidery machines expand the possibilities – from standard patterns to more individualised applications.

AI and Embroidery Where machines assist – and people decide



The question is no longer whether artificial intelligence will become part of embroidery. It already is – in digitising, production planning and marketing. The more relevant question is where it adds value, and where human judgement remains essential.

The foundation: connected processes

AI does not operate in isolation. It depends on data, interfaces and a continuous digital workflow across the entire operation. Investing in AI without connecting machines and digitising processes is of limited value. The foundation lies not in software alone, but in organisation – in clear workflows and a willingness to examine existing processes critically.

What AI already supports

The most visible progress can be seen in routine tasks. Lettering that once required manual digitising can now be converted into embroidery data within seconds. Standard motifs, recurring elements and simple vector designs can be processed faster and more consistently than through manual work.

AI also supports background processes: job allocation, maintenance planning and the analysis of machine data. It reduces the need for manual intervention where consistency and repetition are required.

What remains a craft

Complex designs on demanding materials still depend on experience. How does the fabric behave? Where should stitch density be adjusted? Which underlay supports the design effectively? An experienced digitiser can assess this before production begins.

AI can assist by suggesting options, comparing alternatives and accelerating workflows. The final decision, however, remains with the operator. This distinction defines the difference between standard output and refined results.

AI in marketing – with a distinct voice

AI also changes workflows beyond production. Texts, images and social media content can be generated quickly. While efficient, differentiation comes from context: the story behind a business, long-term customer relationships and the understanding of the product.

These aspects cannot be generated automatically. They reflect the identity of the business and shape how it is perceived.

Confidence over concern

AI is not a replacement for craftsmanship. It is a supporting tool. It takes over repetitive tasks, allowing experience, judgement and individual approach to become more visible.

Businesses that structure their processes, connect their equipment and apply AI where it provides clear benefits can approach future developments with confidence.

Before the machine stops

Why preventive maintenance is essential

ZSK embroidery machines are designed for continuous operation – precise, robust and built for consistent performance.

Even so, every machine requires regular care to remain reliable over time. Routine maintenance not only protects the investment, but also secures production capacity. Each day of unplanned downtime typically costs significantly more than scheduled preventive maintenance.

Why regular maintenance matters

During operation, dust, lint and material residue accumulate on exposed and highly stressed components. Friction increases, tolerances shift and wear accelerates. The result can be thread breaks, stitching errors or, in the worst case, unplanned downtime.

Preventive maintenance addresses these issues early. It supports consistent embroidery quality, reduces avoidable interruptions and helps maintain the long-term value of the machine.

A structured maintenance guide

Each operation should establish a maintenance guide tailored to its machines and working conditions. ZSK provides machine-specific checklists defining intervals, procedures and responsibilities.

Typical measures include daily cleaning in the hook and thread trimming area, weekly lubrication at the embroidery head, and monthly checks of drive components and belt tension. A structured approach ensures that maintenance does not depend on individual operators, but becomes part of standard operations.

Working with a service partner

While routine maintenance can be carried out in-house, certain tasks require trained service technicians. It is therefore advisable to schedule regular service intervals with a ZSK partner or to establish a maintenance agreement.

Such agreements provide predictable costs, early identification of wear through professional inspection and prioritised support in case of issues. Unplanned repairs, particularly when spare parts and technician availability are involved, can lead to extended downtime. Preventive service reduces this risk.

Spare parts and tools: being prepared

A frequently overlooked aspect is the availability of essential spare parts. Without them, even minor issues can result in production delays.

Basic stock should include appropriate machine oil (such as JCW 35), specialised lubricants, filter materials for protecting electronic components, and wear parts such as needles, hooks and belts.

Equally important are suitable tools: a high-pressure grease gun, a belt tension gauge and thread tension measuring devices enable effective in-house maintenance.

Conclusion: maintenance as part of value creation

Maintenance is not separate from production – it is a key part of it. Operations that apply preventive maintenance, maintain structured procedures, involve service partners and keep essential parts in stock operate more efficiently, maintain consistent quality and reduce the risk of costly downtime.

In practice, effective maintenance ensures that the machine does not come to a standstill in the first place.

Maintenance plans & support

Maintenance checklists

Machine-specific maintenance plans with clearly defined intervals, procedures and responsibilities.

Available in the machine documentation and in the ZSK online shop under "Resources".



Maintenance videos

Practical step-by-step guides for common maintenance tasks.

Available on the ZSK YouTube channel **@zskfilm**.



Maintenance support

With TERMINAL PRO, maintenance processes can be planned, documented and monitored using the integrated maintenance module.

A trial version is available in the online shop.



GLEITMO 585 M - Grease
Item No.: 667 055



JCW 35 - Lubricant
Item No.: 750 081



BELT TENSION GAUGE
Item No.: 656 291



TOWA Digital Thread Tension Gauge
Item No.: 570 800



Embroidery Solutions
by **ZSK**

SPRINT R9

It's not just good-looking.

Creative and colourful – with 18 needles

Really fast – up to 1,700 stitches per minute

Perfect for big ideas – maximum embroidery area 500 × 360 mm



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