

AMANN Education Suite · Learning Stream LS 19 Embroidery /
Punching · LN 030

From Design to Embroidery

The DST workflow: how a customer's artwork becomes physical
stitches



What you will learn: how artwork becomes stitches, and where digital decisions affect thread performance



LEARNING QUESTION

How does a customer's artwork become physical stitches – and where can decisions in this digital workflow affect thread performance and embroidery quality?

WHERE THIS NUGGET SITS

LN 029 Prerequisite
Sewing vs. Embroidery: machines and process logic



LN 030 This nugget
From Design to Embroidery: the DST workflow

Target group AMANN Sales, Technical Sales, TAS, Customer Service and Product Management.

Not a digitizer training. The aim is enough digital-process understanding to ask better questions, interpret complaints and know when deeper technical support is required.

AFTER THIS NUGGET YOU SHOULD BE ABLE TO



Understand

Explain the chain artwork → digitizing → machine data → physical embroidery, and distinguish visual artwork from machine stitch data.



Explain

Discuss with a customer why an image is not an embroidery program and what the editable design file preserves that the machine file does not.



Apply

Run the AMANN Embroidery Diagnostic Funnel before treating a 'thread problem' as a thread problem – and know when to involve TAS.

START

UNDERSTAND

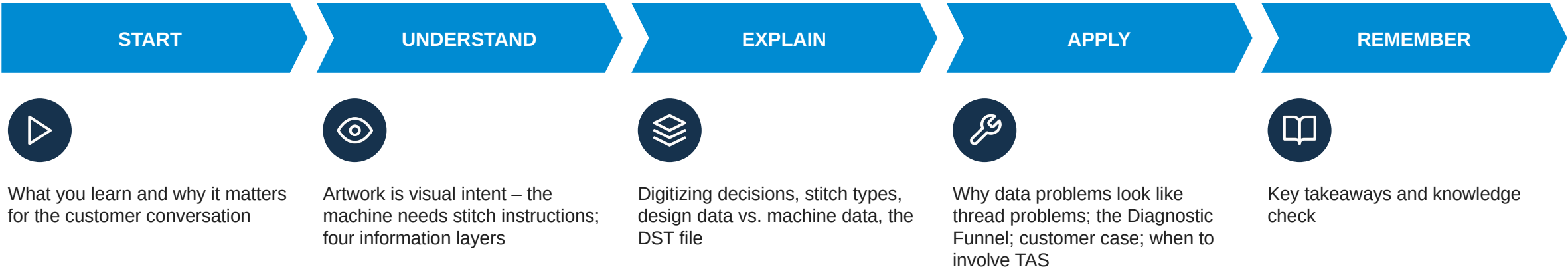
EXPLAIN

APPLY

REMEMBER

The learning journey: five stages from the customer's logo to a systematic diagnosis

Every slide shows the current stage above the footer. Colours mark the information layers used throughout the module.



THREE LAYERS – THE DARKER THE BLUE, THE MORE CONCRETE THE DESIGN



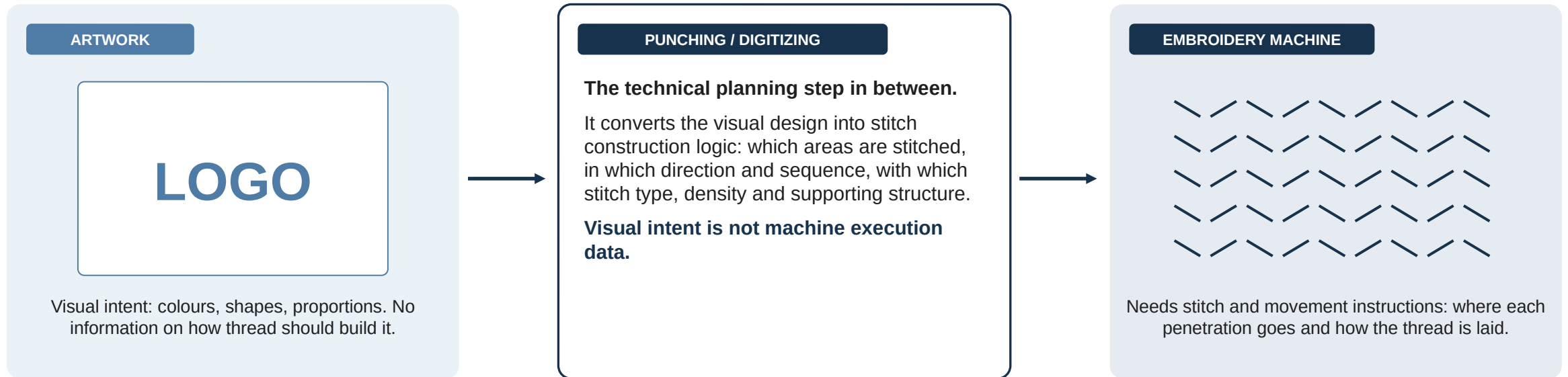
FOUR RECURRING BOXES



An image describes how something should look – the embroidery machine needs instructions for how it is built



Customer situation A customer sends a logo and asks for embroidery. Can the embroidery machine simply embroider the image? **No.**



Point to remember The logo is what the customer sees. Between the logo and the finished embroidery sits a technical planning step – punching / digitizing – that decides how the design is physically constructed with thread. Everything in this nugget follows from that distinction.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

From logo to stitches: the digital chain runs through three layers – visual, digital, physical

Central workflow from visual design to physical embroidery (LN 030, Figure 1)



Visual – customer intent

The logo or graphic as supplied.

Prepared for digitizing: size, position, material known.

Digital – how the design is constructed

Digitizing plans the stitch construction: areas, direction, sequence, stitch type, density, underlay.

The editable punch / design file is exported to machine-readable stitch data – e.g. a DST file (defined on slide 12).

Physical – what actually happens

Machine, thread, needle, fabric and backing execute the stitch data.

The result is the combined effect of data, machine, materials and parameters.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Bitmap and vector artwork give the digitizer different starting points – neither is embroidery data yet

BITMAP / RASTER

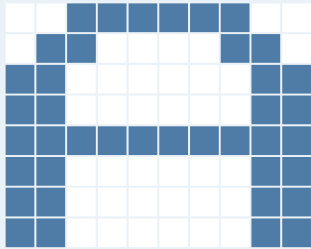


Image built from pixels.

Resolution and scaling affect visible detail.

Practical implication Low-quality or heavily enlarged artwork can make accurate interpretation and digitizing more difficult.

VECTOR

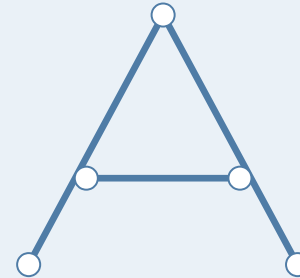


Image defined by lines, curves and geometric objects.

Normally scales cleanly.

Practical implication Can provide clearer geometry for artwork preparation – but still requires embroidery-specific construction decisions.



Point to remember Artwork is the visual input. It is not yet embroidery machine data. Good source artwork improves the information available to the digitizer – but even excellent vector artwork still requires embroidery-specific construction decisions.



Customer relevance what to ask for

- Can you share the original artwork rather than a screenshot or low-resolution preview?
- What is the final embroidery size? · Where will it be positioned, on which material?
- Is there an existing editable embroidery design file and/or a DST or other machine stitch file?

START

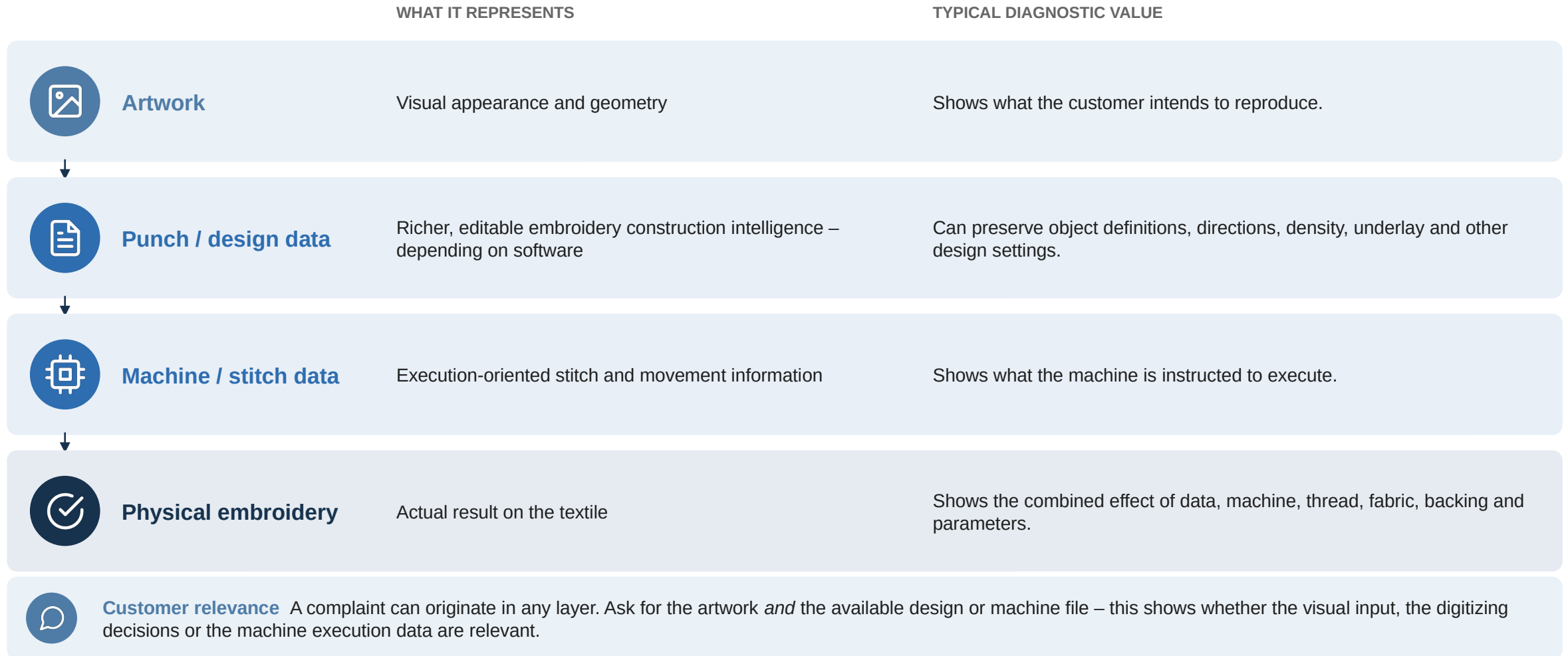
UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Four information layers – for customer diagnosis they must never be treated as interchangeable



START

UNDERSTAND

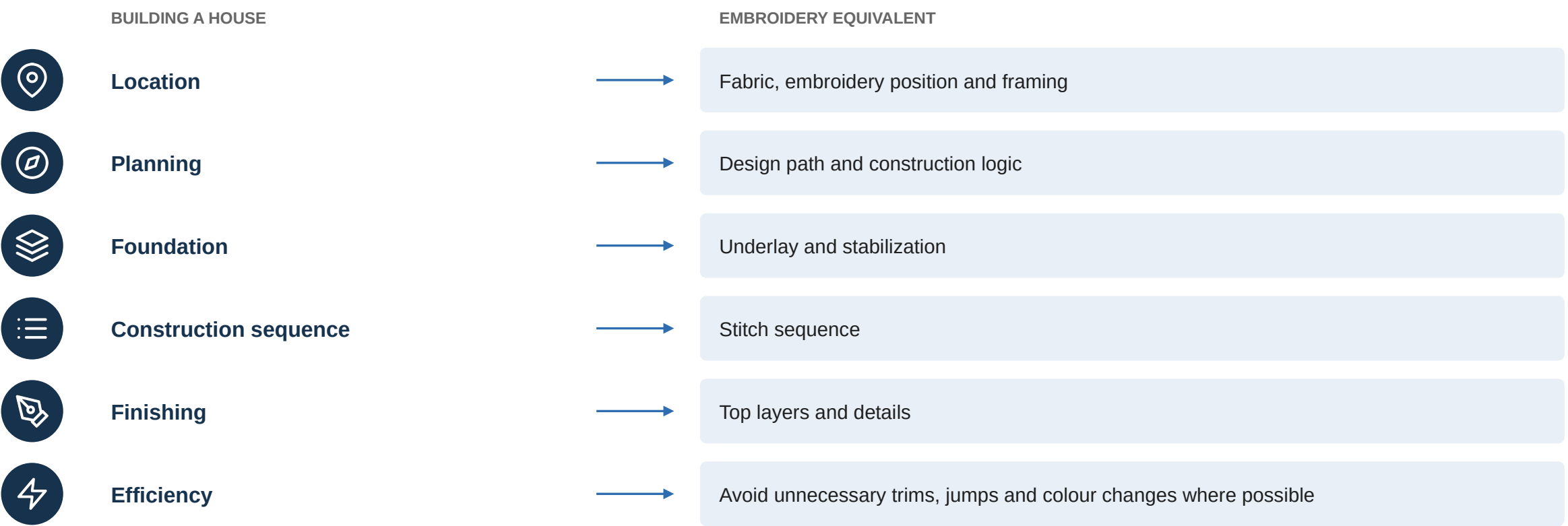
EXPLAIN

APPLY

REMEMBER

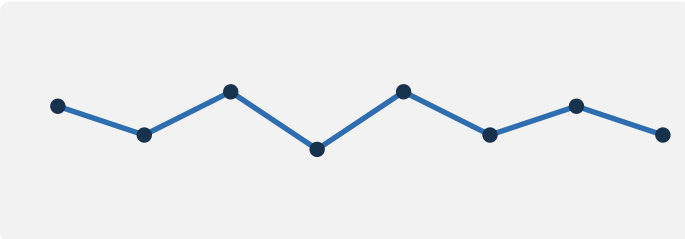
Digitizing is construction planning, not pixel conversion – like building a house, it starts with foundation and sequence

 **Technical knowledge** Digitizing translates visual intent into physical stitch construction: which areas are stitched, in which direction and sequence, with which stitch type, density and supporting structure.



Three basic stitch types load the thread in different ways – the design becomes a physical load pattern

Running stitch

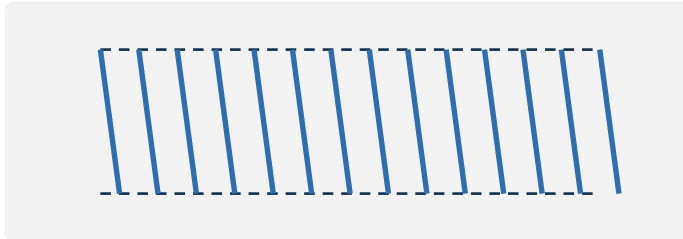


What it is / where used A line of sequential stitches; used for outlines, details, travel or underlay.

What the thread does Follows a linear path with repeated penetrations.

What can go wrong Unsuitable stitch length, pathing or geometry can affect appearance and process stress.

Satin stitch

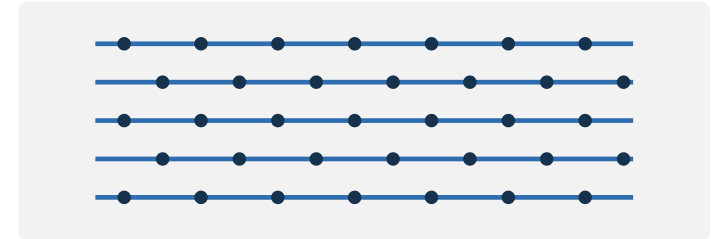


What it is / where used Closely arranged stitches spanning between opposing edges; common for columns, lettering and borders.

What the thread does Repeatedly crosses a defined width, creating a smooth visible surface.

What can go wrong Excessive width or density, small geometry or unsuitable underlay can reduce quality.

Fill / tatami



What it is / where used Rows or patterns of stitches used to cover larger areas.

What the thread does Builds broad coverage through many directional penetrations.

What can go wrong Density, direction, sequence and material stability strongly affect appearance and puckering.



Customer relevance Stitch type changes how often and in which direction the thread is accelerated, bent, tensioned and pulled through the material. The thread experiences the digitized design as a physical load pattern.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Twelve digitizing decisions shape both the appearance and the process stress on the thread

Stitch logic – the decisions that shape the result (LN 030, section 6), grouped by what they control

Geometry of the stitches

Stitch direction

Controls visual reflection, construction forces and how areas are built.

Stitch length

Affects appearance, stitch count, machine movement and thread stress.

Stitch density

Affects coverage, stiffness, stitch count, material loading and thread consumption.

Design geometry

Sharp turns, tiny elements and repeated penetrations increase process difficulty.

Small lettering

Highly sensitive to size, stitch type, density, thread/needle relationship and fabric.

Structure and order

Underlay

Supporting stitch foundation; can stabilize or raise the top stitching.

Sequence

Construction order; influences registration and production efficiency.

Start / end points

Affect pathing, transitions and where the machine begins or finishes an object.

Overlaps

Can improve visual joins but may increase local stitch build-up.

Machine handling

Trims

Cut thread between separated elements; excessive trims can reduce efficiency.

Jumps

Machine movement between stitch locations without normal stitching; handling depends on machine/file logic.

Colour changes

Control thread/needle changes and production sequence.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

The editable design file keeps the design intelligence that the exported stitch file no longer carries



Punch / design data – keep it

- Contains richer editable design intelligence.
- May retain contours, object definitions, stitch directions, density and design settings – depending on software.
- Better basis for substantial editing or re-scaling.
- **The source / design file should be retained where possible.**

Machine / stitch data – for execution

- Primarily contains the stitch / machine movement information needed for execution.
- Represents the exported construction as machine-readable stitch instructions.
- More limited for reconstructing the original design intent.
- **The exported file is what the machine runs.**



Customer relevance Ask for both: the editable design file and the machine file. If only the machine file exists, substantial changes to the design usually mean re-digitizing.

START

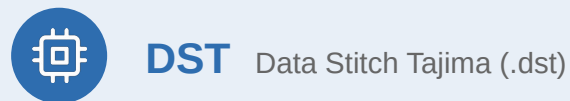
UNDERSTAND

EXPLAIN

APPLY

REMEMBER

DST is machine stitch data – not an image, and not the complete editable design source



DST Data Stitch Tajima (.dst)

A widely used commercial embroidery stitch-data format originating from Tajima.

Contains machine-executable stitch movements and control commands.

Does not contain the original artwork or the full editable digitizing source. Colour assignments are normally handled separately.



Customer relevance For customer diagnosis, ask for both the artwork and the available DST or other machine file. This helps establish whether the visual input, the digitizing decisions or the machine execution data may be relevant.



Point to remember If a customer only has a DST file, the design can be run but not easily re-engineered. If a quality problem traces back to construction decisions, the correction is made in the design file and exported again – not in the thread.

THE PRACTICAL DISTINCTION IS ENOUGH – NO BINARY FILE KNOWLEDGE NEEDED



Artwork visual intent

≠



Punch / design file editable source

≠



DST machine file stitch data for execution

≠



Physical embroidery actual result

Four different things. Treat DST as machine / stitch data – not as an image format and not as the design source.

A note on 'DSI'

The abbreviation DSI appears in the project wording for this learning stream. The AMANN source material does not provide an embroidery-specific expansion for it. This nugget therefore teaches no definition of DSI and does not treat it as equivalent to DST; the intended meaning is confirmed by AMANN / TAS.

START

UNDERSTAND

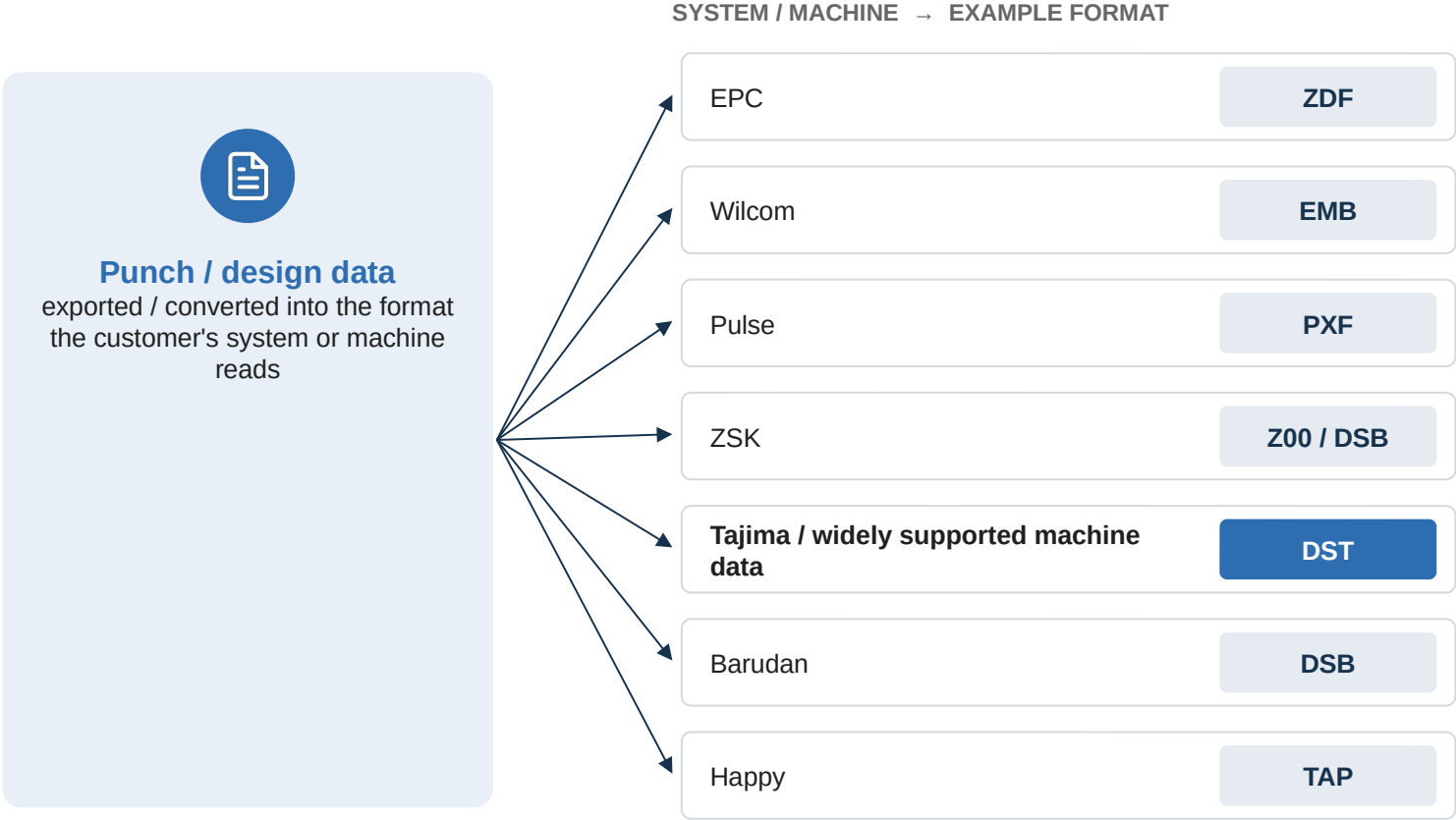
EXPLAIN

APPLY

REMEMBER

One design, many machine formats – file-format support must be confirmed in current documentation

Examples retained from the supplied AMANN learning material (LN 030, section 8)



 **Important** File-format support varies by software, machine generation and workflow. Machine- or vendor-specific compatibility should be confirmed in the relevant current documentation before advising a customer.

Why a digitizing problem can look like a thread problem – check the system before the thread is judged

CUSTOMER SYMPTOM

DO NOT JUMP TO ...

SYSTEM CHECKS – IN THIS ORDER

 "The thread keeps breaking."	× Replacing or blaming the thread immediately	→ Thread type / size Needle Tension Thread path / hook Speed Fabric / backing Density Stitch length Repeated penetrations / design geometry
 "The logo puckers."	× Assuming thread shrinkage	→ Fabric stability Framing Backing Density Underlay Sequence Tension
 "Small letters look poor."	× Assuming the thread is low quality	→ Letter size Stitch type Digitizing Density Thread size Needle Fabric structure
 "It works slowly but fails at production speed."	× Assuming a defective cone	→ Dynamic tension Thread path Needle Machine condition Dense / short stitches Speed sensitivity Thread suitability

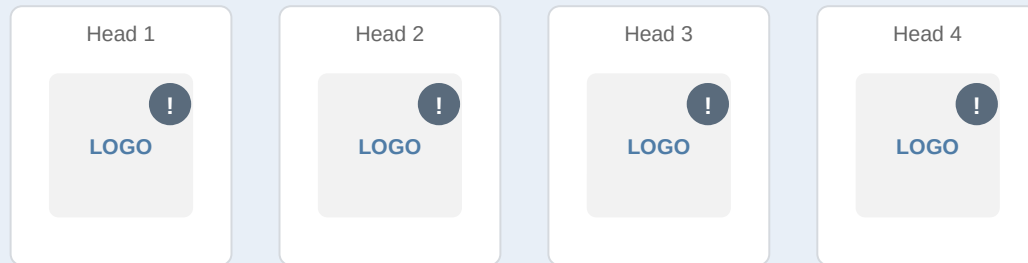


Point to remember The thread is the last item on each check chain, not the first. A thread that runs on one design and fails on another is a reason to look at design, data and setup before the cone.

Same failure at the same design position on every head? Then the data chain becomes the more plausible cause

Diagnostic principle: the digital design can create a repeatable failure pattern

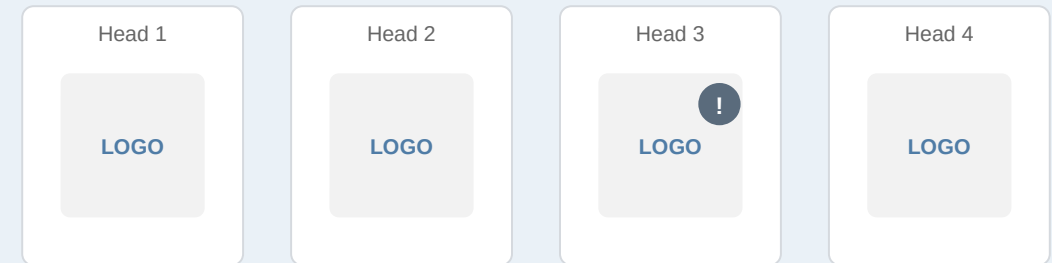
Problem at the same design position across multiple heads or articles



Design / data chain becomes more plausible

The digital design is identical on every head. A failure that repeats at the same point in the design follows the data, not the individual setup.

Problem isolated to one head, one needle position or one cone



Head-specific setup or material becomes more plausible

The same data runs on all heads. A failure on one head only points to that head's needle, thread path, tension, cone or mechanical condition.



These are diagnostic indications, not absolute proof. They direct the next check; they do not establish a cause. Verify before attributing a root cause.

START

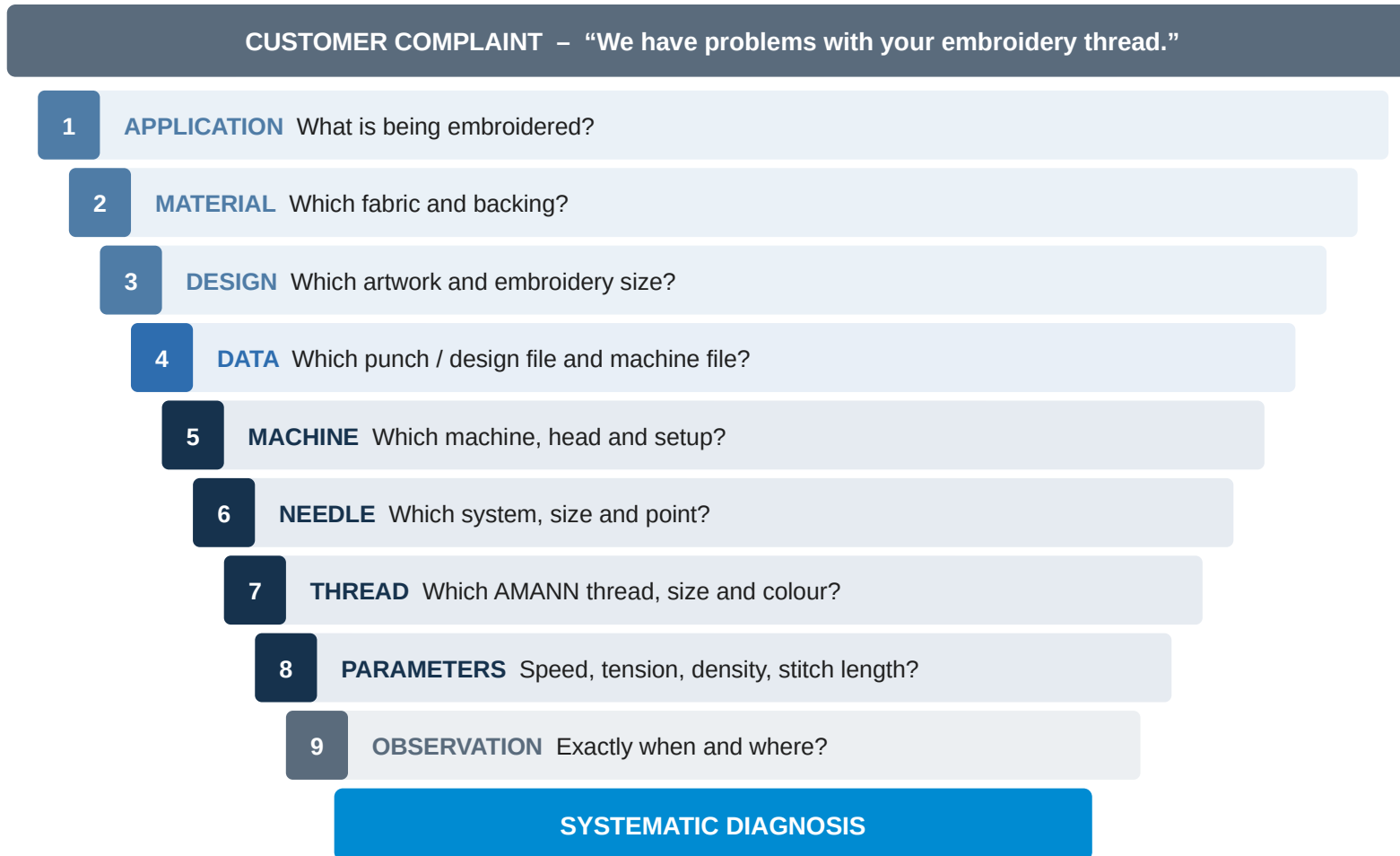
UNDERSTAND

EXPLAIN

APPLY

REMEMBER

The AMANN Embroidery Diagnostic Funnel: nine questions before the thread is judged



How to use the funnel

1–3 Establish what is being made, on what, from which artwork.

4 Separate design data from machine data.

5–8 Pin down the physical setup and the running parameters.

9 Locate the failure exactly in time and position.

Only then assess whether the thread itself is the likely root cause.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Customer case: “We have problems with your embroidery thread” – ten questions before the thread is assessed



Customer

“We have problems with your embroidery thread.”

What a trained AMANN employee does

First establish the application and material, then understand the design and data chain, identify the exact machine / head / needle setup, verify the thread and thread size, and finally examine the operating parameters and the precise failure location.

PRACTICAL CONVERSATION SCRIPT · NUMBERS REFER TO THE FUNNEL STEP

- 1 Show me the article and the exact embroidery location.
- 2 Which fabric and backing are you using?
- 3 Can I see the original artwork and the embroidery at its final size?
- 4 Do you have the editable punch / design file and the DST or other machine file?
- 5 Which machine, head and needle position show the problem?
- 6 Which needle system, size and point are fitted?
- 7 Which AMANN thread and size are running?
- 8 What speed and tension setup are you using?
- 9 Does the problem occur at the same point in the design?
- 9 What changed immediately before the problem started?



Point to remember Only after these facts are separated should the thread itself be assessed as a likely root cause. The conversation turns a product complaint into a system diagnosis.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

When first-level checks cannot isolate the cause, Technical Advisory Services (TAS) takes over

ESCALATE TO TAS WHEN ...

-  First-level checks cannot isolate the cause
-  Repeated failures remain after verified setup checks
-  Machine timing / mechanics or complex digitizing–application interactions are suspected
-  An application requires product-specific validation
-  A customer needs structured trials and documented technical recommendations

 **AMANN perspective** First-level diagnosis by Sales and Customer Service separates the facts; TAS adds structured trials, product-specific validation and documented recommendations where the interaction of data, machine and material needs deeper work.

THREE KNOWLEDGE LEVELS IN THIS NUGGET

ADVANCED – technical deep dive

Support structured trials and deeper troubleshooting with TAS / Technical Service; understand richer digitizing variables and machine–application interactions.

APPLIED – customer conversation

Collect artwork / data / application facts, discuss needle–thread–fabric–backing–machine interactions and use the Diagnostic Funnel.

BASIC – must know

Explain artwork → digitizing → machine data → physical embroidery; distinguish visual artwork from machine stitch data; recognise that quality is systemic.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

What you should remember: LN 030 in ten sentences

1 Artwork describes visual intent; it is not an embroidery program.

2 Bitmap and vector artwork provide different source geometry – both still require embroidery-specific planning.

3 Digitizing defines how the design will be physically constructed with stitches.

4 Stitch type, direction, length, density, underlay and sequence change both appearance and process stress.

5 Editable punch / design data can contain richer design intelligence than exported machine / stitch data.

6 DST is treated as machine / stitch data – not as an image and not as the complete editable design source.

7 DSI is a project term; no embroidery-specific expansion is taught until AMANN / TAS confirms the intended meaning.

8 A repeatable “thread problem” can originate in design geometry, digitizing, data, machine setup, material or process parameters.

9 First-level diagnosis starts with application, material, design, data and observation before a product root cause is assigned.

10 LN 030 gives AMANN employees enough digital-process understanding to ask the right questions and involve TAS when deeper validation is needed.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Knowledge check: four questions from the customer's point of view

Answer each question in one or two sentences before moving to the next slide.



Question 1

Why can an embroidery machine not simply embroider a customer's logo image?



Question 2

What is the practical difference between the artwork and a DST file?



Question 3

Why should the editable design file be retained – and what does it mean for the customer if only the machine file exists?



Question 4

A customer reports thread breaks at the same point of the logo on all six heads of the machine. What does this pattern indicate – and what does it not prove?

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Knowledge check: model answers

1

Answer 1

Because an image only describes how something should look. The machine requires stitch and movement instructions that define how the design is physically constructed – these are created in digitizing.

2

Answer 2

The artwork represents visual intent. The DST file is treated as exported machine / stitch data for execution – it is not an image format and not the complete editable design source.

3

Answer 3

The editable file can preserve richer design intelligence (objects, directions, density, underlay, settings) and is the better basis for substantial editing or re-scaling. With only the machine file, substantial changes usually mean re-digitizing.

4

Answer 4

A problem repeating at the same design position across comparable heads makes design / data causes more plausible. It is a diagnostic indication, not proof – the cause still has to be verified through the system checks.

Model answers follow LN 030 V05, section 17. Wording may differ; the distinction between the layers and the 'indication, not proof' logic are the points that count.

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Sources, method note and disclaimer

SOURCES

- **Master Learning Document** GG-MOON-A2-LN030-DOC, V05, 14 September 2026 – Learning Nugget LN 030 'From Design to Embroidery – The DST / DSI Workflow' (single source of truth for this presentation).
- **Prerequisite** LN 029 – Sewing vs. Embroidery: Machines and Process Logic.
- **Source backbone of LN 030** Supplied AMANN Technical Sales Training material 'Process of Embroidery' – Part 1: Artwork; Part 2: Punching; Part 3: Embroidery Machine & Accessories.
- **Design framework** AMANN Group PowerPoint master, June 2026.

METHOD NOTE AND DISCLAIMER

Source research, literature analysis and data evaluation were carried out with the support of AI systems, among them Claude (Anthropic), ChatGPT (OpenAI), Perplexity and comparable tools. These systems were used to locate, compare and structure sources and data. Technical statements and their attributions were reviewed by the authors against the underlying primary sources before release. Responsibility for the content rests with the authors.

This learning module contains no product specification, no product recommendation and no assurance of product properties. Binding technical statements on AMANN products are made by the AMANN Group. File-format compatibility and machine-specific details change and are confirmed in current vendor documentation before use. Trademarks are the property of their respective owners.

Prepared by Gherzi Germany for AMANN Group

Programme AMANN Education Suite · Technical Advisory Services (TAS) · MOON 3.0_A2

Document GG-MOON-A2-LN030-PRE · Project GG-2026-MOON-A2 · Version 1.1 · 14 September 2026 · Confidential

START

UNDERSTAND

EXPLAIN

APPLY

REMEMBER

Thank you for your attention!

Learning Nugget LN 030 · From Design to Embroidery · AMANN Education Suite

