

SEWING FOCUS

TECHNICAL SEWING INFORMATION



SERVICEHOUSE

Saddler Goods

Checklist for Sewing Saddler Goods

Sewing Parameters: SCHMETZ Tip:

Needle size	NM 90 – 200	SIZE 14 – 25
Depending on the thickness of the material. We recommend the use of the SCHMETZ SERV 7 needle for textile materials.		

Needle point	For the production of saddler goods, round points as well as cutting points are used with various types of incision.
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Sewing thread	For needle and hook/looper thread, mostly continuous multi filament made from 100 % polyester or 100 % polyamide are used. Also core spun threads are used. For hand sewing, waxed threads/yarns are used.
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Machine	As a rule, industrial high-speed sewing machines with double lockstitch are used. To trim textile materials, overlock machines are used.
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Other factors:

Thread tension	The necessary thread tension depends on fabric, thread and sewing machine. Thread tension should be as low as possible in order to ensure optimal stitch formation.
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Stitch type	Double lockstitch (stitch type 301) according to DIN 61400 and all stitch types of overedge chain stitch (class 500) according to DIN 61400.
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Stitch density	The higher the stitch density, the higher the strength of the seam. But: max. 3 – 4 stitches/cm.
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SCHMETZ
NEEDLES SINCE 1851

Quick Reference for Typical Sewing Problems in Manufacturing Saddler Goods

Symptoms	Effect	Cause
No interlacing/interlooping of needle thread and bobbin/looper thread	Sub-standard, defective seam appearance	Incorrect thread tension
Needle thread breaks	Thread breakage after skip stitch	Incorrect needle system
Ravelling of the needle thread		Needle incorrectly fitted
		Use of an oversized sewing thread in relation to the needle size
		Mechanical damage to needle, throat plate, feed etc.
		“Tipping over” of the needle thread loop
		Jamming of the sewing thread between needle and fabric
		Incorrect thread guidance

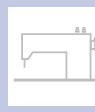
Material damage

Material damage	Reduced tensile strength of the material	Oversized needle and/or wrong point style
Abrasion mark	Sub-standard, defective seam appearance	Excessive sewing speed
	Reduced seam strength	Defective/worn out needles
		Use of wrong feed

Uneven seam appearance

Stitch sequence is irregular, resulting in a zig-zagging seam	Reduced seam strength	Incorrect adjustment of the sewing accessories such as hook/looper, feed etc.
	Sub-standard, defective seam appearance	Incorrect balance of thread tension
		Incorrect thread guidance
		Needle deflection too heavy
		Damaged thread guiding elements

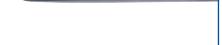
Solution

NM SIZE	Point style	Thread	Machine
			
Use the SCHMETZ SERV 7 needle for textile materials	Check point for damage	Adjust sewing thread size to the needle size	Optimize the hook/looper setting
Adjust needle size to the material and amount of layers		Optimize thread tension	Examine the thread guiding elements
CAUTION: Change needle regularly (after every shift or in shorter intervals depending on the stress)			Adjust the sewing accessories such as throat plate, feed etc. depending on material thickness and sewing thread/needle
Check needle eye and groove for damage, if in doubt: change needle			Change worn out or defective sewing accessories regularly such as thread guiding elements, hook/looper, throat plate etc.
			Check throat plate for damage

Use the SCHMETZ SERV 7 needle for textile materials	Textiles: R Normal round point SES Light ball point SUK Medium ball point	Choose the right sewing thread size according to the needle size and the fabric	Adjust the sewing accessories such as throat plate, feed etc. depending on material thickness and sewing thread/needle
Adjust needle size to the material and amount of layers	Leather: LL Twist point LR Reverse twist point LBR Wide reverse twist point S Narrow cross point D Triangular point DH Half triangular point		Check and adjust the material transport

Use the SCHMETZ SERV 7 needle for textile materials	Optimize thread tension	Examine the thread guiding elements
Adjust needle size to the material and amount of layers	Check thread flow	Check and adjust the material transport

Selection of Point Style and Needle Size

Material	Needle size NM / SIZE	Point style
Medium / thick leather	110 – 200 / 18 – 25	<p>LL twist point</p>  <p>LR reverse twist point</p>  <p>LBR wide reserve twist point</p>  <p>S narrow cross point</p>  <p>D triangular point</p>  <p>DH half triangular point</p> 
Textile materials	90 – 140 / 14 – 22	<p>R normal round point</p>  <p>SES light ball point</p>  <p>SUK medium ball point</p> 

General recommendation in manufacturing saddler goods out of textile materials:

Use of the SERV 7 needle version with appropriate point style



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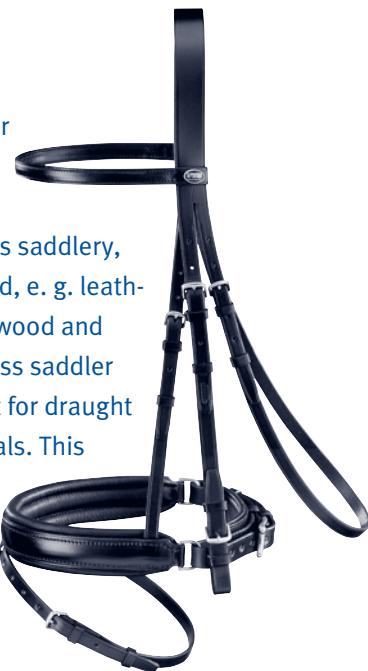
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1. Manufacturing of saddler goods

The trade of saddler is one of the oldest of its kind. It developed from the trades of pouchmaker, needlemaker, beltmaker, loriner, bridlemaker, cartwright und purse maker. In order to meet the continuously increasing demands and individual wishes, there are a number of different saddler specializations today. But not every saddler is the same – one distinguishes between the following:

- Car/vehicle saddler
- Wallet/purse maker
- Equestrian and harness saddler

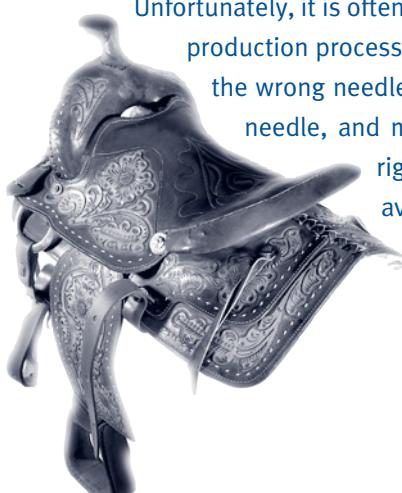


In the area of equestrian/harness saddlery, many different materials are used, e. g. leather, synthetic materials, textiles, wood and metal. The equestrian and harness saddler produces and repairs equipment for draught animals, mounts and pack-animals. This includes high-quality saddles, usually tailored to a particular horse or rider, harnesses, bridles, reins, leads, straps and blankets. In the saddlery trade, constant high quality of the end product is the decisive criterion for an optimal positioning in the market and for ever-growing success. Quality assurance from the very first step of production is crucial and responsible for the end product.

Source: G. Passier & Sohn GmbH

If the needle is ignored during preparation, later manufacturing steps will cause irreparable damage to the material.

Unfortunately, it is often discovered too late in the production process of equitation articles that the wrong needle was used. With the right needle, and more importantly with the right point style, this can be avoided.



1.1 Typical sewing problems

The sewing of leather and textile materials is often a rather delicate matter and demands special sewing requirements. Depending on the type of leather or combination of materials, sewing parameters (such as thread and needle) that are not coordinated can lead to various sewing problems.

Typical sewing problems in the production of saddler goods are:

- Skip stitches/Thread breakage
- Seam perforation/Material damage
- Uneven seam appearance

1.2 Quality seams with the right sewing parameters

All sewing parameters that influence production must be carefully coordinated: fabric, needle, thread and machine. Quality seams can not only meet the demands of durability and tensile strength, they can also comply with designers' fashion trends as well as growing customer demands.

Needle

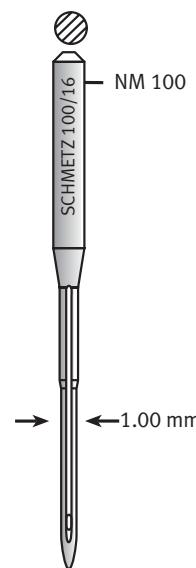
2. Selection of the right needle

When sewing saddler goods, choosing the right needle is of particular importance. Apart from textile materials (e. g. leather imitations, padded materials), mostly heavy leather is used in the production of leather goods (saddles for example). Those are sewn using rigid cutting points. The relevant cutting profile and needle size together with thread and stitch density determine the appearance of the seam.

Choosing the right needle depends on the thickness of the fabric, the number of layers and material combinations (e. g. padded pommels).

2.1 Needle size

Before choosing the point style, the size of the needle should be fixed. It is important to find the matching sewing thread: The size of needle eye and thread size must be carefully matched so that the thread can pass through the needle eye with as little friction as possible.



The needle size is dependent on fabric, number of layers, thread and finish. No damage can be expected when using the right needle diameter and convenient needle eye.

You can find an overview of the recommended needle sizes in the table on page 4.

2.2 Point style

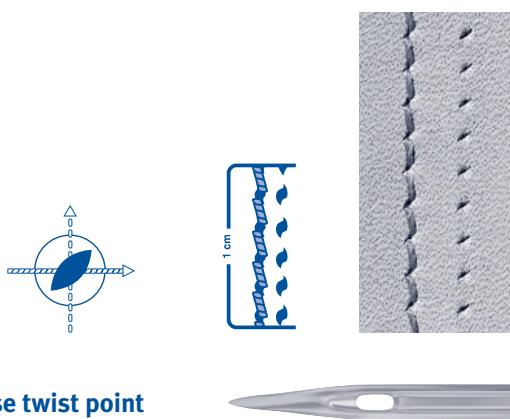
When choosing the right needle point style, one must consider saddler goods made from leather as well as saddler goods made from textiles (e. g. horse-blankets), but also combinations of both.

The needles for sewing saddler goods have a cutting edge. These special needles penetrate the fabric more easily due to their ability to cut. If one chooses the right point style in combination with the appropriate stitch length, the leather's loss of strength due to cutting is negligible.

The choice of cutting point depends on the thickness of the leather, type of seam, seam function and the desired seam appearance (e. g. decorative seam).

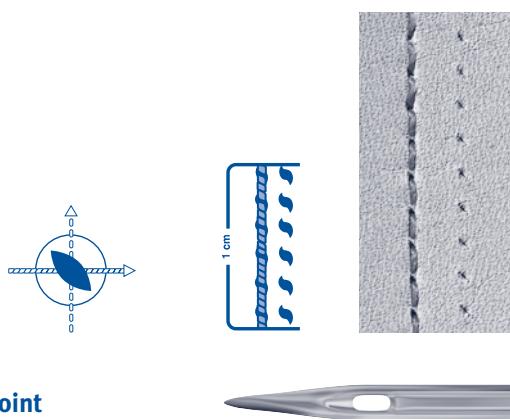
Stitch hole and seam appearance vary depending on whether the tip's cross-section is lens-shaped, diamond-shaped or triangular. It also matters whether it is transverse, diagonal or in the direction of the seam.

For decorative seams, “LR” points are used. In the case of the reverse twist point the incision into the leather is made at an angle of 45° to right to the direction of the seam. The needle produces a decorative seam slightly diagonal to the left. With all cutting points, attention must always be paid that stitch density is not too high. Otherwise, the leather will be perforated too much and the stability of the seam will be impaired.



LR reverse twist point

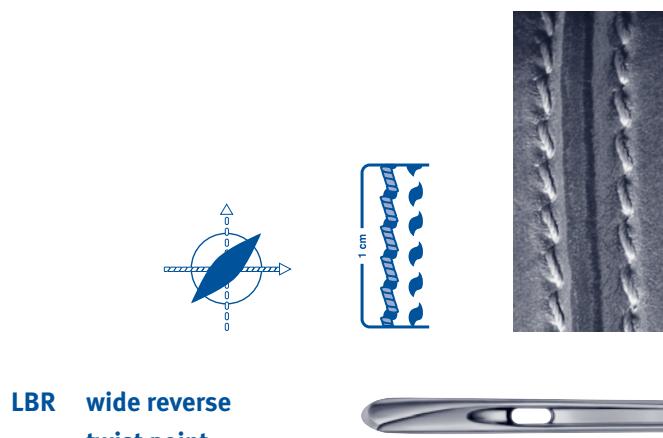
An “LL” cutting point does not really make a decorative seam; instead a slightly recessed, straight seam is created. At an angle of 45° to left to the direction of the seam the incisions are exactly opposite to those of the cutting point “LR”. “LL” needles with a right twist point groove (CR) are also available. Usually an “LL” point is used for a two-needle decorative seam. Here the needle should have a “CR” point groove (right twist point groove) in order to prevent the thread getting stuck and in order to achieve a better seam appearance of the left seam.



LL twist point

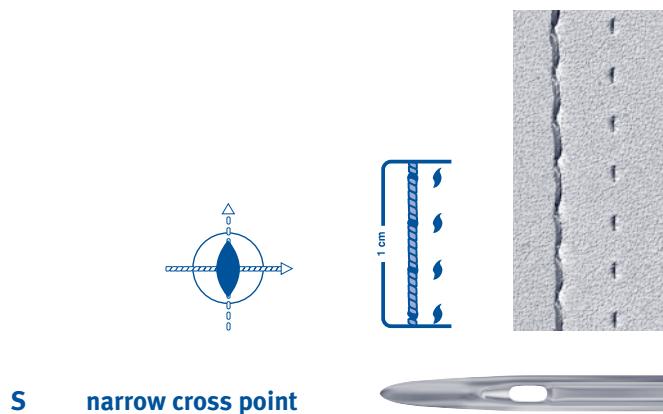
LLCR twist point
with right twisted point groove

The “LBR” point is a cutting point with lens-shaped incision. The incision takes place to the right at an angle of 45° to the direction of the seam and beyond the blade diameter. This needle produces a left-inclined, embossed and accentuated decorative seam. The use of coarse thread results in very beautiful decorative seams.



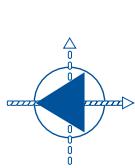
LBR wide reverse twist point

Another commonly used needle point is the “S” point (narrow cross point), a cutting point with a lens-shaped cut in the direction of the seam, which cuts the leather by 80 %. This point cuts in the direction of the seam and therefore only allows seams with larger distances between stitches. If the stitches are too close together, it may cause the leather to be completely perforated. It is often used to produce coarse decorative seams when working with thick sewing threads and large distances between stitches, since the stitches are parallel to the seam. This gives the seam a straight appearance.

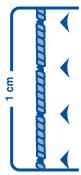


S narrow cross point

For good and economical sewing of hard, dry leather or coated material, needles of the “D” point style (triangular point) are used. This needle makes one of the most effective incisions of all the cutting point needles. In addition, the symmetrical point style ensures that the needle is almost never deflected, so that the seam is straight because well centered. The star shaped incision produced by the “D” point is unfortunately never quite filled by the sewing thread, so that a very large hole remains visible in the material.



D triangular point



The normal round point “R”, characterized by its pointed conical shape, is the standard point style and has many applications. It produces a straight seam. When sewing material combinations, the selection of point style is often a matter of compromise. Thus, the “R” point is used most often. Another area of use is the sewing of firmer leather, which can easily be penetrated using the normal round point.

R normal round point



The light ball point “SES” displaces fabric threads, directly piercing gaps in between and avoiding damage to the material.

SES light ball point

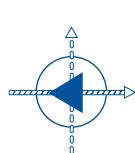


The medium ball point “SUK” is even more rounded than the “SES” light ball point and guarantees a damage free displacement of the fabric threads.

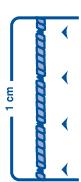
SUK medium ball point



The ball points “SES” and “SUK” originate from the use in the field of knitwear. Experiences in the area of woven fabrics – especially with laminated fabrics – show that very good seam results can be achieved with their help.



DH half triangular point



Depending on material structure and number of layers, for the production of saddler goods made from textile materials or a combination of materials round or ball points should be used, which carefully push the fabric threads to one side when the needle penetrates.

2.3 SERV 7 needle construction

Different sewing demands and material thickness require a needle which produces trouble free high quality seams.

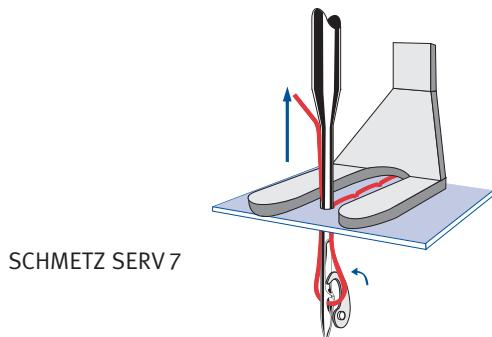
Besides material damage skip stitches are a common problem. Skip stitches are produced if the loop of the needle thread, which is formed during stitch formation, is not caught by the hook point interrupting the interlacing of needle thread and bobbin thread. Skip stitches are influencing the direction and the strength of the seam and thus significantly the quality of the final product.

SERV 7 is a special needle to prevent skip stitches and needle breakages. This needle type comes in different point styles – meeting the various claims of the materials to be sewn. The distinctive features of SERV 7 needles are their specially shaped hump scarf and their extra blade reinforcement. The hump scarf extends the loop so that the hook or looper can catch it easily. This greatly reduces skip stitches.

The outstanding stability of the SERV 7 needle especially pays when it comes to sewing multiple layers and firm materials.

SCHMETZ Tip:

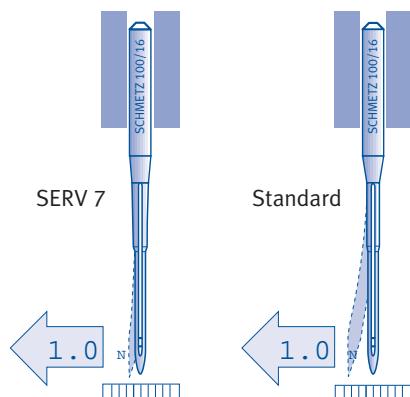
Benefit 1: SERV 7 hump scarf produces optimum loop formation and prevents skip stitches.



The SERV 7 blade reinforcement makes the needle especially stable and far less likely to “bend”. Needle breakages are thus minimized and the centric penetration produces a better seam appearance. The low deflection of the needle also prevents skip stitches.

SCHMETZ Tip:

Benefit 2: SERV 7 needle has higher stability which prolongs the needle's operational life.



2.4 Changing of the needle

Damages of the needle as well as needle tip wear and tear impair the quality of the end product. Depending on the number of fabric layers, material thickness and combination, the needle should be changed at the beginning of every shift or at least once per working day. Changing the needle regularly enables consistently high sewing quality.

Sewing thread

3. Selection of sewing threads and stitch parameters

In the production of saddler goods, many different material combinations are used. The right choice of sewing thread is extremely important for the quality of the end product. An important criterion of quality is seam strength, a damage-free and straight seam appearance. Seam appearance is further influenced by the choice of stitch type, stitch density and thread tension. The right choice of sewing thread and the stitch parameter settings determine the sewing efficiency as well as the functionality of the finished seam. The chosen yarns/threads and stitch parameters must be adapted to the relevant production process as well as to each other.

3.1 Composition and size of the sewing thread

In the production of saddler goods, mostly robust continuous multi filament sewing threads made from 100 % polyester or 100 % polyamide as well as sewing threads (e. g. 11/3, 18/3, 15/4) are used.

Due to their tensile strength, elasticity, weather and light resistance as well as their abrasion resistance, synthetic sewing threads live up to high demands of the open seams. Effective core spun threads made from 100 % polyester or 100 % polyamide with cotton core spun also fulfill their task in the production of saddler goods.

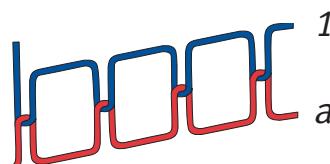
Many processes in the manufacture of saddler goods are still carried out by hand. Waxed sewing threads or yarns are particularly suitable as hand sewing threads in order to ensure that the thread glides well.

3.2 Stitch type

When sewing saddler goods, the double lockstitch (stitch type 301) is used most often. Overedge chain stitches are used to trim textile materials.

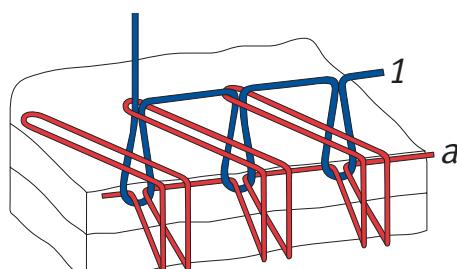
Stitch type 301 – double lockstitch

For joining and closing seams, also for topstitching, e. g. stitching snaffles



Class 500 – types of overedge chain stitch

For serging seams with high demands as well as joining and serging the fabric edges at the same time



3.3 Stitch density

The favorable stitch length depends on the desired seam strength of the different saddler goods. If the stitch length is too long, seam strength is diminished because there are fewer stitches on one meter of seam. If the stitch length is too small, the result is perforation – especially in the production of saddler goods made from leather. In order to maintain a high stitch density for these kinds of goods, a needle with a suitable direction of cutting must be selected.

Depending on thread size and the size of the incision hole, stitch density should be not more than 3 – 4 stitches/cm. Stitch density should also be adjusted to number of layers, strength of the material and the desired strength of the seam.

3.4 Thread tension

The precise setting of thread tension is decisive for the quality and appearance of the seam. An optimal thread tension is a precondition for the right thread distribution and sufficient thread in the seam. It depends on fabric, sewing thread and sewing machine.

Machine

4. Sewing machines for the manufacturing of saddler goods

For sewing leather wear, mainly heavy 1-needle double lockstitch machines are used. Additional accessories (such as folders) and special presser feet (e. g. Teflon®, wheel or roller feet) make sewing easier.



Flatbed Sewing Machine

Closing and topstitching seams



Free-Arm Sewing Machine

Three-dimensional sewing operations, closing seams on curves



Long-Arm Sewing Machine

Closing and attaching seams for places that are difficult to access and for broad goods



Mono Block Sewing Machine

Serging of fabric edges

4.1 Feed

To ensure uniform material feed there are various forms of machine accessories and feeds.



Compound feed with alternating presser foot top feed

For sewing heavy or feed-critical materials with uniformly long stitches

4.2 Throat plate/Throat plate aperture size

All machines are fitted with specific sewing accessories for the particular use or sewing operation for which they are intended. This includes the machine's feed as well as the throat plate aperture, which matches the needle size that can be used.

Attention must be paid that the throat plate aperture is not too big for the needle size. This could result in the material being pulled into the throat plate, which in turn results in serious material damage and skip stitches. On the other hand, the thread must be able to pass through the aperture freely.

4.3 Sewing speed

In the production of saddler goods, the seams are mostly short and the material must often be additionally passed through by hand. This method does not allow for very high sewing speed. In practice, a sewing speed of 1,200 stitches/min must not be exceeded. As a result, the occurrence of thermal material damage in the processing of synthetic and coated materials is greatly reduced.

5. Our advice

You can achieve damage-free quality seams if all the sewing parameters are precisely coordinated with one another.

Material, needle, thread and machine are the key variables. The **SCHMETZ SERVICEHOUSE** offers various service packages:

From recommending the ideal needle for your fabrics to sending out sample needles and providing assistance with special sewing requirements. In addition the **SCHMETZ SERVICEHOUSE** offers competent on-site advice on your production line and training courses for your employees.

**Challenge us –
let us show you our competence!**

Needle size/Throat plate aperture size							
Needle size [NM]	60	65	70	80	90	100	110
Throat plate [mm] aperture size	1.00	1.20	1.20	1.40	1.60	1.60	2.00

Relationship of needle size to throat plate aperture size

Form to copy and fax:

+ 49 (0) 24 06 / 85-186

Do you have further questions about sewing saddler goods?
Would you like support in solving your individual sewing problem?
Would you like recommendations on needle selection and sewability of your fabrics in advance of production?
Challenge the SERVICEHOUSE experts and take advantage of our offer.

We will be pleased to send you information on:

Our range of service:

CONSULTING

SAMPLE NEEDLES

Sample needles, tips and information

DOCUMENTED SEWING REPORTS

Sewing reports tailored to match your sewing goods as well as solutions for your complex sewing demands

EXPRESS CONSULTING

Express consulting by phone, fax or e-mail

Company name
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Position
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Country
Phone
Fax
E-Mail

INFORMATION

SEWING FOCUS

Sewing information for special industries and applications

PRODUCT FOCUS

Product information for special industries and applications

GUIDE TO SEWING TECHNIQUES

Manual for sewing industry

TRAINING/SYMPOSIUM

TRAINING-ON-SITE

Industry specific training including the latest information on needles, threads, machines and applications

SYMPOSIUM

Interdisciplinary knowledge sharing and exchange of expertise for skilled sewing industry staff