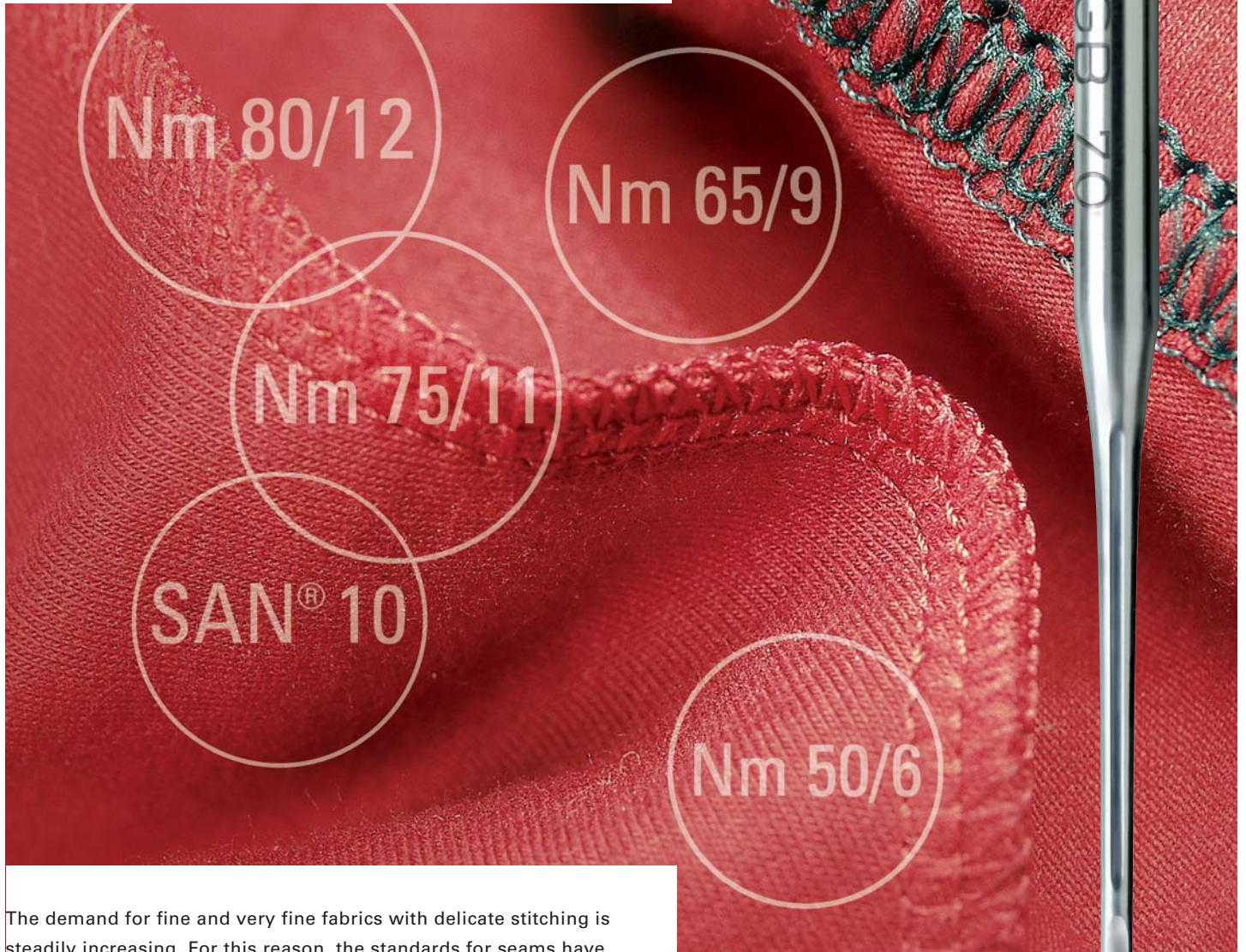


THE RIGHT NEEDLE –
FOR PROBLEM FREE PROCESSING
OF FINE KNITWEAR – SAN® 10



The demand for fine and very fine fabrics with delicate stitching is steadily increasing. For this reason, the standards for seams have also increased. As soon as seams are worn directly next to the skin, not only elegance and attractiveness are important – softness and comfort also come into play.

Flawless sewing results with such fine materials call for very high quality standards for the needles. Often, needles designed for special applications must be used in order to guarantee process reliability during sewing.

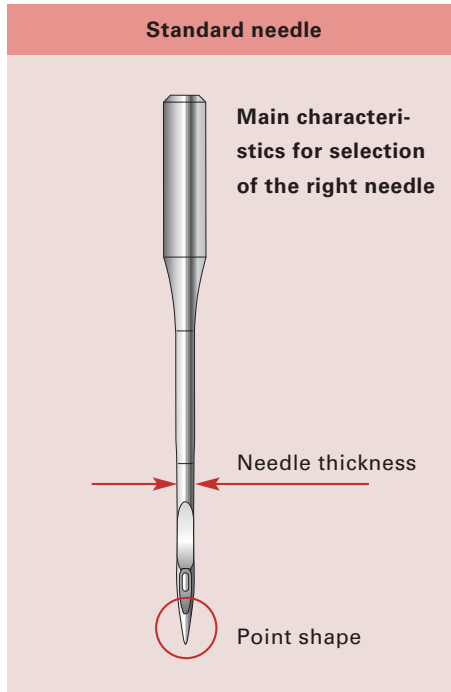
Choosing the "right" sewing machine needle is one of the most important requirements.

CHOOSING A NEEDLE SYSTEM

Which needle system is used is generally dictated by the type of machine used and the sewing job in question. Within this needle system, there are variants that a user can choose from to meet specific requirements.

This choice involves the following questions:

- Which needle thickness?
- Which point shape?
- Use of a standard needle or a special application needle?



The advantages of Groz-Beckert needles

As your partner, Groz-Beckert guarantees:

- Innovative needle development that is close to the market
- Optimised needle geometry and excellent mechanical properties
- Needles with top uniformity and close tolerances
- Technical service and application advice
- World-wide availability



The user benefits from:

- High needle quality
- High process reliability
- Cost reduction
- Improvement in quality
- Less machine downtime
- Solutions for new fabrics and trends
- Support with solving sewing problems
- Support with quality planning

SELECTING THE IDEAL NEEDLE THICKNESS

Guideline: as thick as possible and as thin as necessary.

Using very thin standard needles can solve quality problems at the expense of output.



CHECKING SEAMS: SLIGHT PULLING AND SHEARING MOVEMENTS MAKE MATERIAL DAMAGE VISIBLE (FIG. 2)

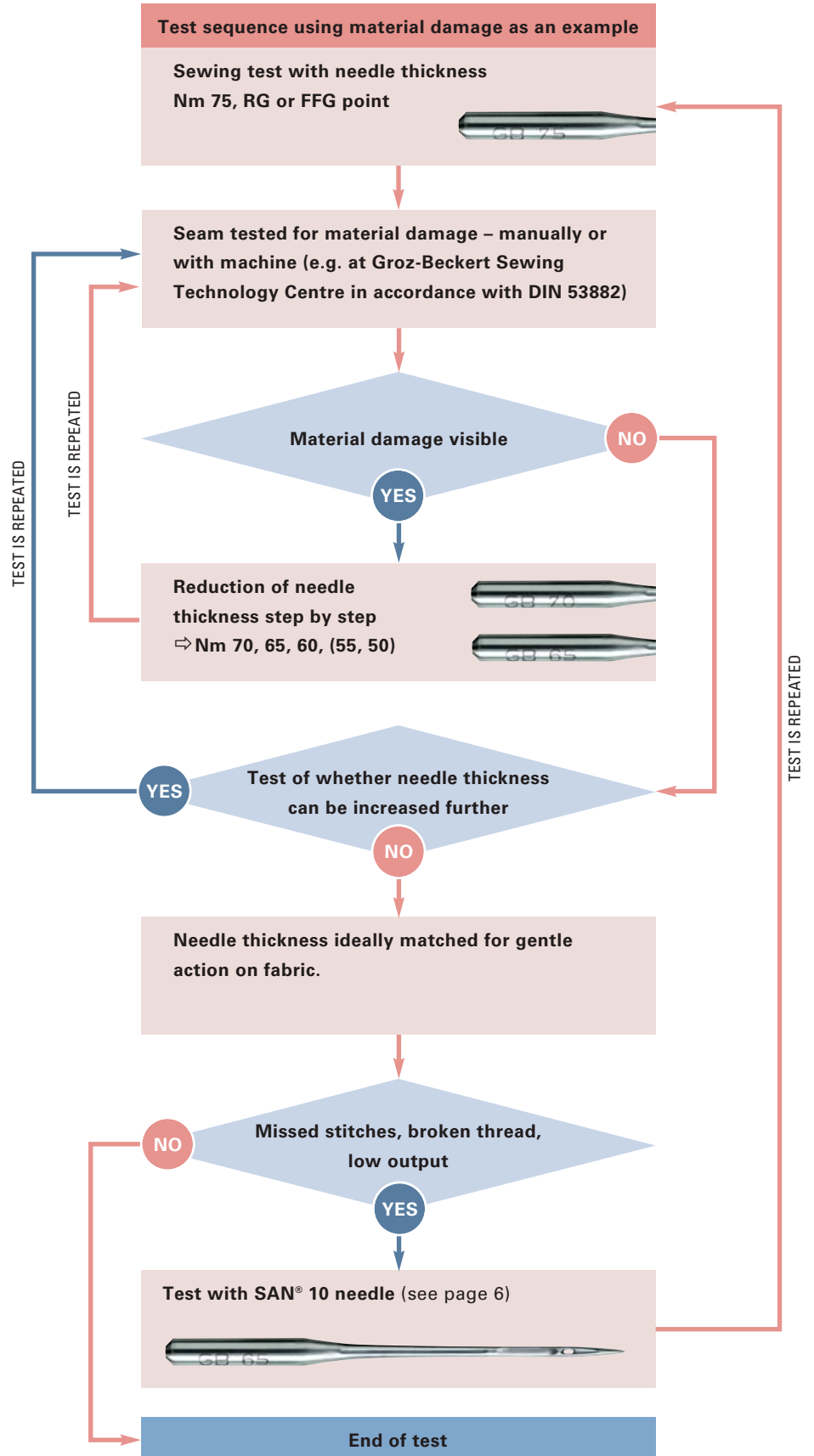


STITCHES IN THE KNITTING ARE DAMAGED – TEST IS CONTINUED WITH THE NEXT SIZE DOWN OF NEEDLE THICKNESS.



NO MORE MATERIAL DAMAGE VISIBLE – CORRECT NEEDLE THICKNESS HAS BEEN FOUND.

The test sequence described here can also be used with the causes of faults described on page 5.

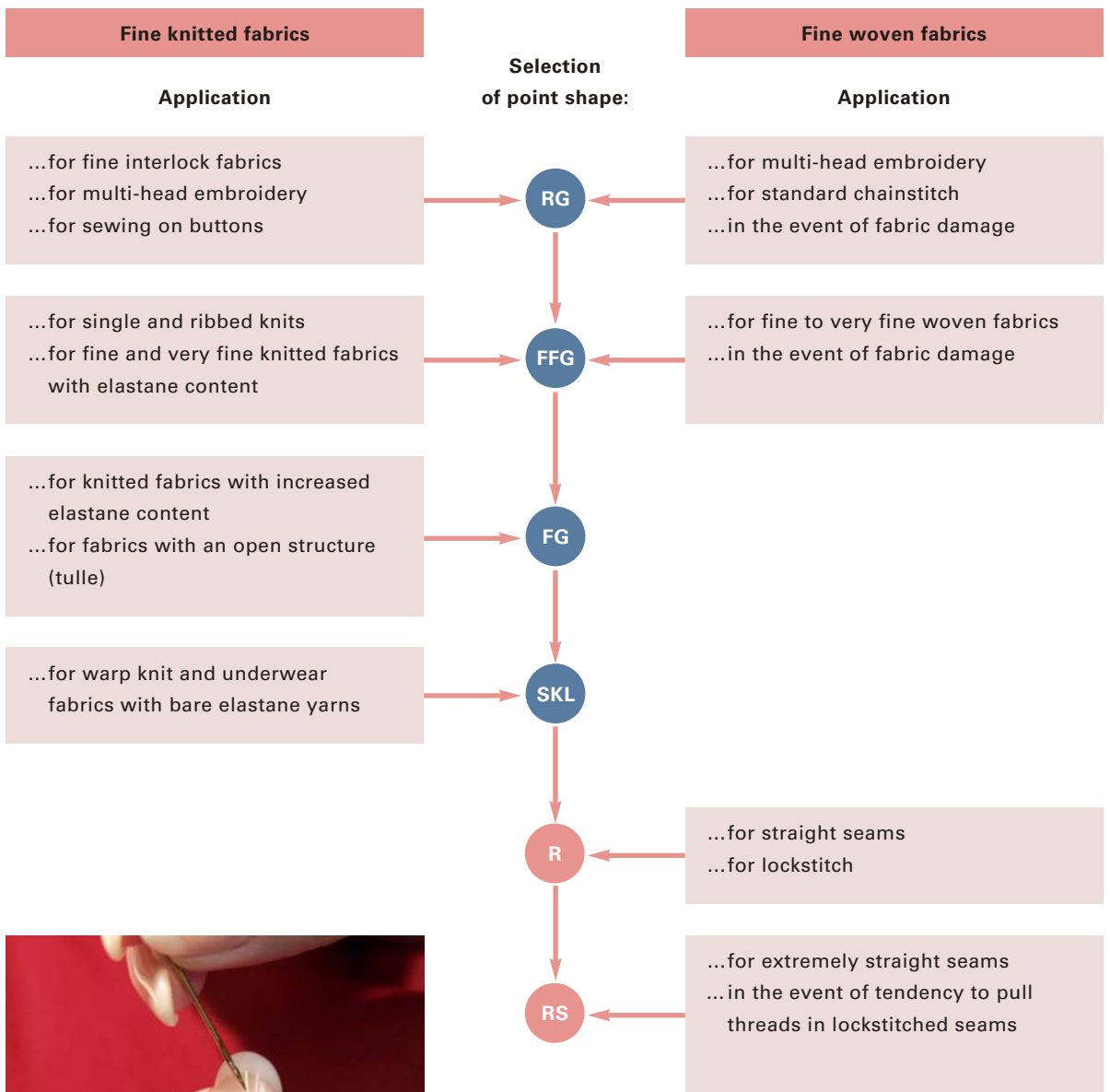
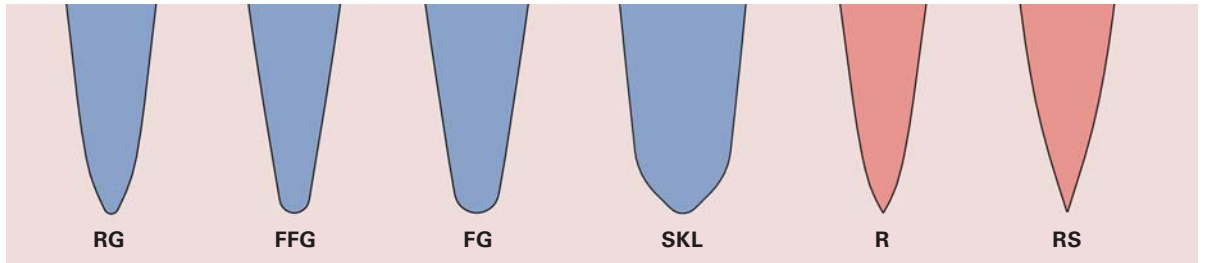


SELECTING THE MOST SUITABLE NEEDLE POINT

The following are available:

Ball points **RG, FFG, FG and SKL**

Round points **R, RS**
(not for knitted fabrics)



Requirement for optimum process stability:

- Regular testing of the point is essential
- Replacement of a needle in good time increases the process stability



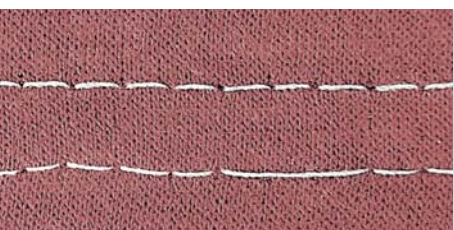




NEEDLE POINT TEST: DRAW NEEDLE POINT LIGHTLY OVER FINGERNAIL AND SEE IF IT LEAVES SCRATCH MARKS.

PROBLEMS IN USE

There is currently a wide variety of materials available that are fine and difficult to sew, and consequently problems often occur in use.

The causes of sewing problems are very diverse. They can be due to the machine, the fabric, the machine operator, the climate, the sewing thread or the needle. In addition, users often want different seam structures and seam types combined with varying numbers of fabric layers and thicker areas. In this document, we shall deal only with needle-related faults.

Possible needle-related causes	Effect	Possible solutions
<p>Material damage</p> <ul style="list-style-type: none"> • Needle too thick • Wrong point shape • Damaged needle point 		<ul style="list-style-type: none"> • Use a thinner needle • Select a suitable needle point • Check the needle point • Use a Groz-Beckert SAN® 10 needle
<p>Seam puckering</p> <ul style="list-style-type: none"> • Needle too thick • Wrong needle point 		<ul style="list-style-type: none"> • Use a thinner needle • Select a suitable needle point • Use a Groz-Beckert SAN® 10 needle
<p>Missed stitches</p> <ul style="list-style-type: none"> • Needle too thin • Thread not suitable for needle thickness 		<ul style="list-style-type: none"> • Use a thicker needle • Match the thread thickness to the needle thickness • Use a Groz-Beckert SAN® 10 needle
<p>Broken thread</p> <ul style="list-style-type: none"> • Needle too thin • Thread not suitable for needle thickness 		<ul style="list-style-type: none"> • Use a thicker needle • Match the thread thickness to the needle thickness • Use a Groz-Beckert SAN® 10 needle
<p>Broken needle</p> <ul style="list-style-type: none"> • Needle too thin • Wrong point shape 		<ul style="list-style-type: none"> • Use a thicker needle • Select a suitable needle point • Use a Groz-Beckert SAN® 10 needle

SPECIAL APPLICATION NEEDLE SAN® 10

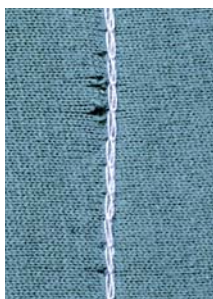
IDEAL FOR HIGH QUALITY WITH A HIGH OUTPUT

The advantages of the Groz-Beckert SAN® 10 at a glance:

- Higher stability while gentle on fabric
- Reduction of missed stitches
- Reduction of needle breakage
- Suitable for sewing fabrics that are difficult to sew
- Possible to use thicker threads with the same needle thickness
- Increased productivity

Groz-Beckert recommends using SAN® 10 needles for:

- Fabrics with a high tendency to be damaged during sewing
- Extremely sensitive fabrics that can only be sewn at minimal speeds and with extremely thin needles
- Sewing with bulked yarns and elastic yarns
- Use in multi-needle machines



STANDARD NEEDLE

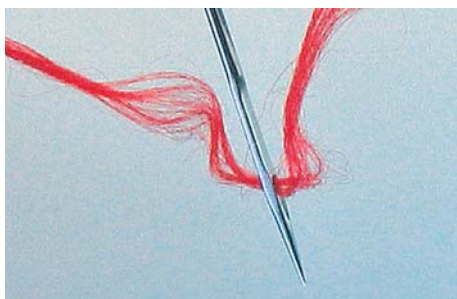


SAN® 10

Machining fabrics that are difficult to sew

Knitted, warp and weft threads are pushed out of place and subjected to high friction when a needle penetrates them. In extreme cases, this can cause splitting damage. Fine fabrics with an inadequate finish are consequently very difficult to sew without causing damage. The shank geometry of

the Groz-Beckert SAN® 10 needles that is specially gentle on fabric makes it possible to sew fabrics like this with practically no difficulties.



BULKED YARN

Machining jobs with thin needles in combination with bulked yarns

Bulked yarns are often sewn with very thin needles. Problems can arise right at the beginning because it is difficult to thread the needle. Then there is often a fault in the thread slipping properties during sewing, which can cause missed stitches, broken threads or broken needles.

The specially adapted eye geometry of the Groz-Beckert SAN® 10 has clear advantages in this area.



MULTI-NEEDLE MACHINE

Use in multi-needle machines

In multi-needle machines, the needles are clamped in place at different heights, because they have different functional cycles. For this reason, the needles sink into the fabric by different depths. The needles that penetrate the furthest are placed under particularly high demands

as far as gentleness on the material and their own stability are concerned. Due to the special shaping of the shank, Groz-Beckert SAN® 10 needles meet these requirements better than other needles.