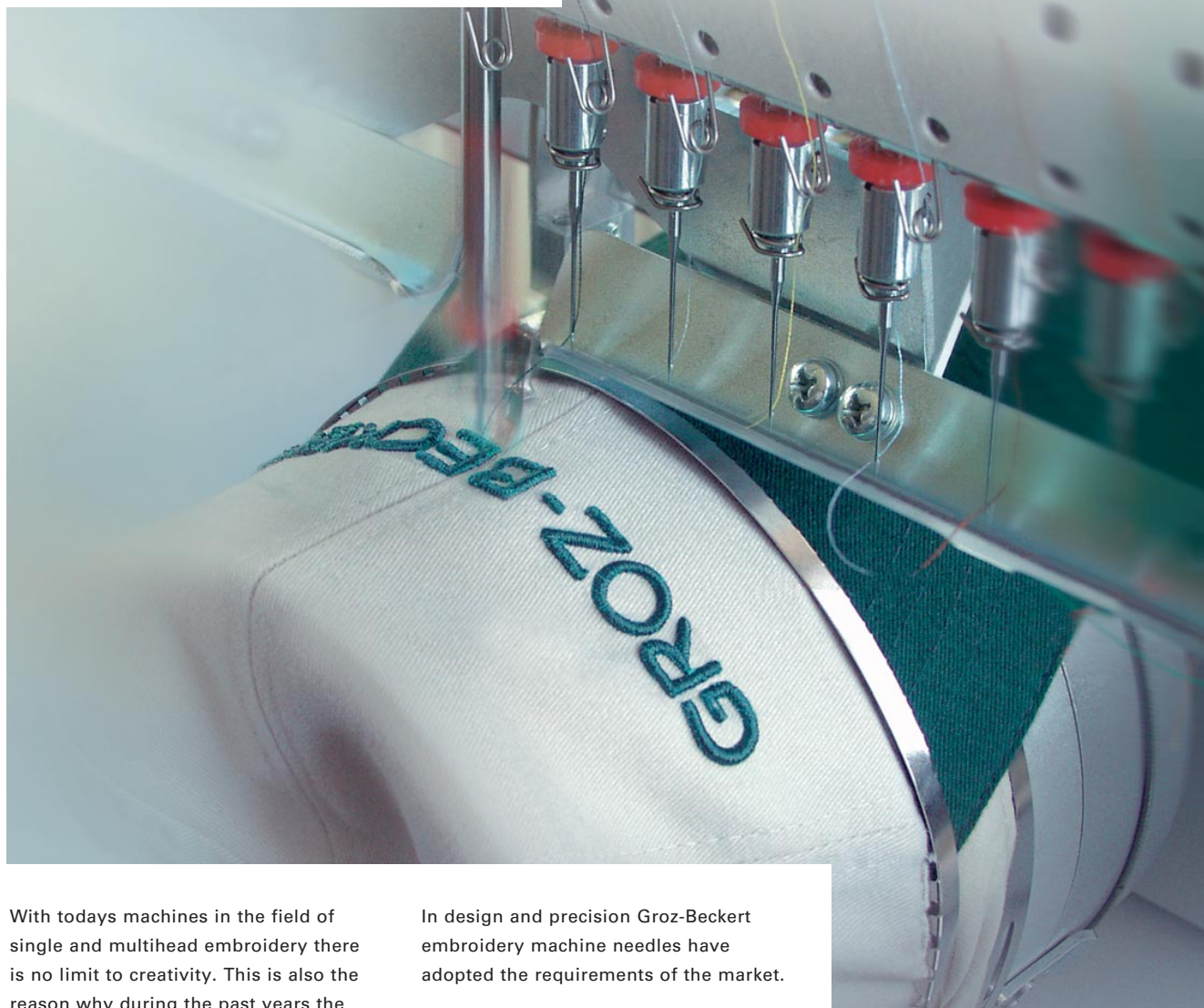




## NEEDLES FOR SINGLE- AND MULTIHEAD EMBROIDERY



With today's machines in the field of single and multihead embroidery there is no limit to creativity. This is also the reason why during the past years the variety of different embroidery materials has increased rapidly.

Especially three-dimensional embroidery, embroidery on leather and technical textiles with different layers of material and coatings, combined with high machine speeds, is in many cases an extreme challenge for the embroidery machine needle.

In design and precision Groz-Beckert embroidery machine needles have adopted the requirements of the market.

#### Market requirements are:

- Optimum embroidery appearance
- High functional safety
- Reduced needle breakage
- Reduced thread breakage
- Reduced machine downtime
- High production efficiency

## THE DB X K5 AND ITS SPECIAL FEATURES

### Variations of the DB x K5

The original needle for single- and multihead embroidery

The needle system DB x K5 was especially developed for the use in modern high performance machines. During research and development the following points had to be considered:

- Reduction of skipped stitches and thread breakage
- Maximum protection of thread and material
- Safe thread loop pick up
- Best universal point style
- Eliminate looping
- Optimum stitch fill (no gaps)

### The features and applications of the DB x K5

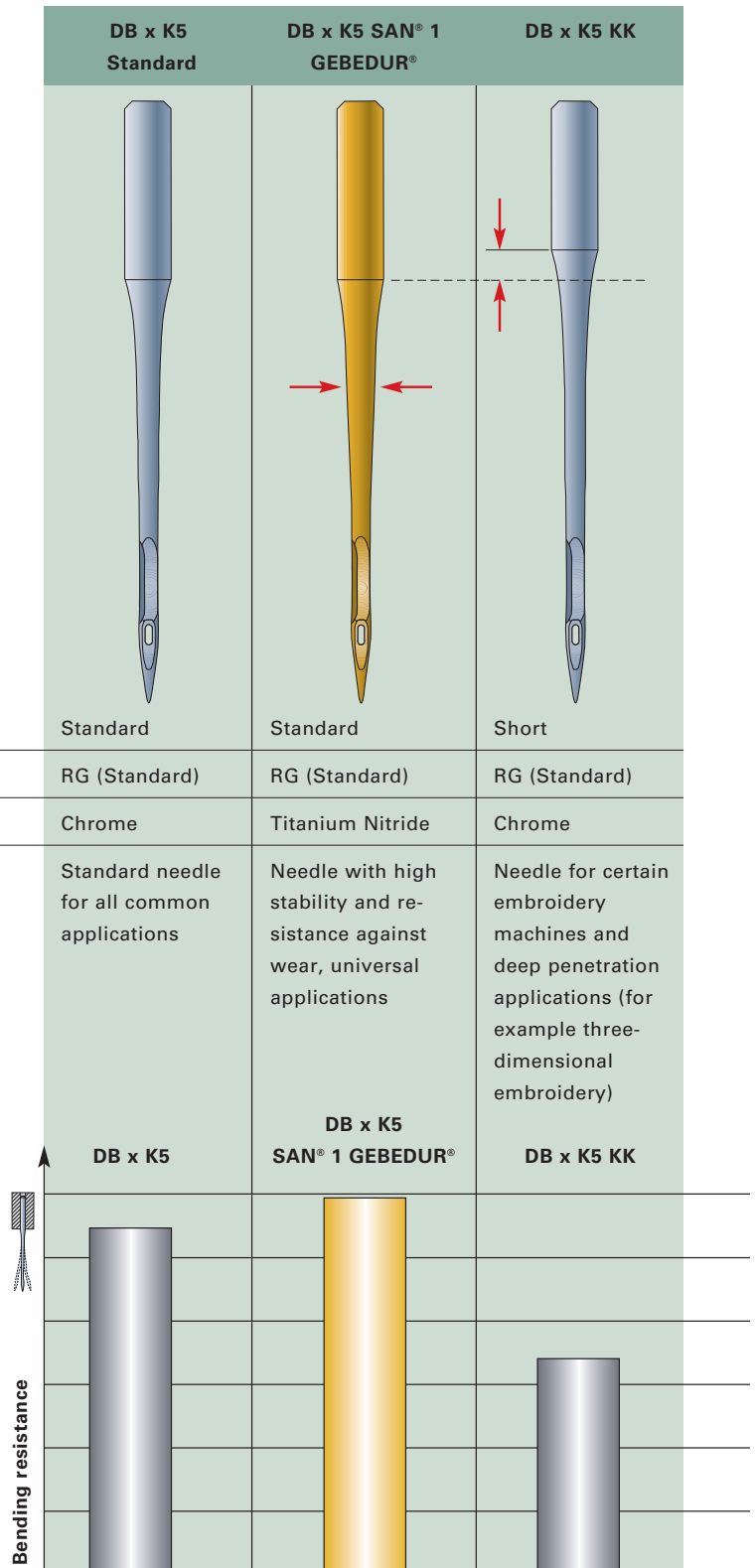
	DB x K5 Standard	DB x K5 SAN <sup>®</sup> 1 GEBEDUR <sup>®</sup>	DB x K5 KK
Shank length	Standard	Standard	Short
Point style	RG (Standard)	RG (Standard)	RG (Standard)
Coating	Chrome	Titanium Nitride	Chrome
Application	Standard needle for all common applications	Needle with high stability and resistance against wear, universal applications	Needle for certain embroidery machines and deep penetration applications (for example three-dimensional embroidery)

### Stability comparison of the standard DB x K5 and its variations

Essentially the needle system DB x K5 has the highest stability. The bending resistance of the standard needle is higher than any of the other needle systems used in the embroidery industry.

The SAN 1<sup>®</sup> GEBEDUR<sup>®</sup>, with its special design and a titanium nitride coating, offers highest stability and maximum resistance against wear.

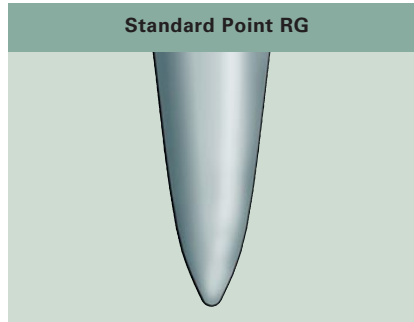
The blade design of the “KK” version corresponds to the standard DB x K5 needle. However, due to its shorter shank, bending resistance is lower.



## THE POINT STYLES OF THE DB X K5

### Standard point RG and point variants

In various application tests the RG-point proved to be the most suitable point across a variety of materials. Therefore the RG-point is the standard point style for Groz-Beckert embroidery needles.

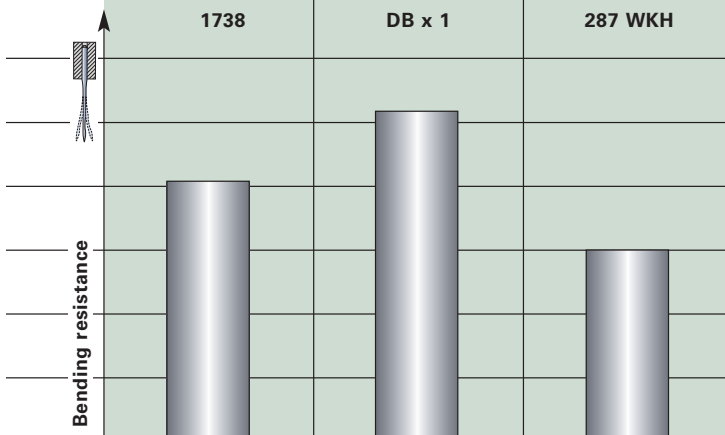


For other applications the following point styles are available:

- FG / SUK**
- FFG / SES**
- R**

### Other needle systems for embroidery

1738	DB x 1	287 WKH	The DB x K5 in comparison	
				eye size
long point R-point	long point R-point	short point R-point	Standard point length RG-point	point length



### The needle stability

The other needle systems here were not specifically designed and produced for embroidery. Their application related features are designed for the use in single needle lockstitch machines. Nevertheless, many embroidery factories still use these needles today.

Their stability, defined as resistance against bending, is shown in the diagram opposite and can be compared with the DBxK5 variations.

## KNOWN APPLICATION PROBLEMS AND POSSIBLE SOLUTIONS

### On knitwear

To avoid material damage when embroidering knitted fabrics, it is recommended in most cases to use needles with a ballpoint.

On fine knitwear the standard point RG (also FFG) and on coarse knitwear the FG-point.

In addition, needle size has a big influence on material damages. It goes without saying; tests with the requested needle size should be done before starting production.

### On woven fabric

Whether on fine or heavy woven fabrics, if the ballpoint is too big or the used needle too thin, problems will occur during the embroidery operation. Irregular appearance of the embroidery design, thread breaks and also needle breakage can be the result.

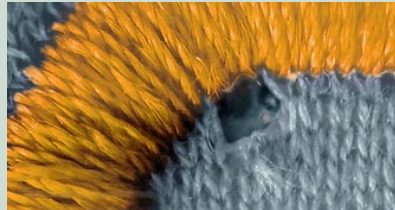
High stability and at the same time maximum material protection are required! Features which the needle system DBxK5 offers in all sizes.

### On leather

Cutting points are not suitable for this application. The changes in the stitching direction will result in previously sewn threads being cut, excessive perforation of the leather and irregular stitch hole openings. On fine and medium hard leather the RG- and R point are proven and on hard leather the R point is recommended.

Penetration forces through leather are relatively high, so needles must offer highest stability. The DB x K5 and in particular the DB x K5 SAN® 1 GEBEDUR® meet this requirement.

#### Material damage

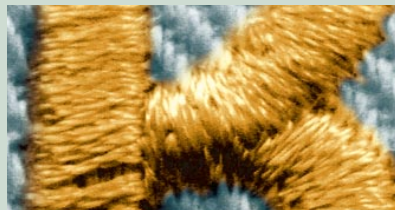


A needle point which is too sharp will create loop damage or needle cuts. A needle, which is too thick will push out the loop under tension and break it.

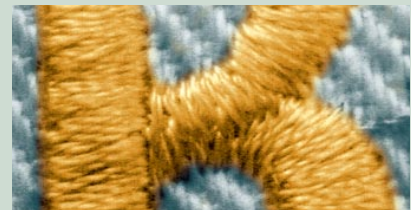


A DB x K5 size 65 with RG-point was used on this fine knitwear, the result is a nice embroidery design without any damage.

#### Irregular embroidery appearance

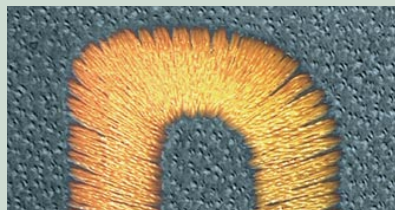


Needle deflection caused by a needle which is too thin or a ballpoint which is too big results in an irregular embroidery design.

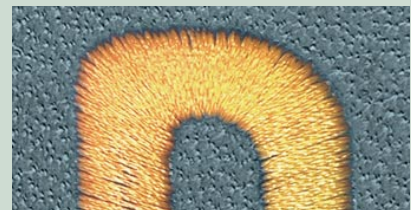


A DB x K5 75 with RG-point was used on this woven fabric, the result is an excellent embroidery design.

#### Irregular embroidery appearance



When using a cutting point on embroidery, lengthways and across the grain, the cuts in the leather are different. In extreme cases, the design can be completely cut out from the leather.



A DB x K5 SAN® 1 GEBEDUR® with RG-point was used on this leather, the result is an attractive and consistently top quality embroidery design.



## 3-D EMBROIDERY

### Highest demands are put on a needle in three-dimensional embroidery

In order to achieve the 3-D-effect foam material is positioned on the embroidery base before being over-stitched. The adhesion and the foam material leads to higher friction, not to mention the variety of thickness the needle has to contend with. In addition these embroidery designs often have to traverse panel seams in caps. Therefore the many forces placed upon the needle (and embroidery threads) can and do vary in the extreme. For this sort of application the embroidery needles need to fulfil the following requirements:

#### Lower penetration force

- **Material protection**

#### Raise (highest) stability

- **Eliminate skipped stitches**
- **Reduced needle breakage**
- **Precise embroidery fill**

#### High resistance against wear

- **Long lifetime**



Besides Groz-Beckert's standard DBxK5 needle, these demands are further reduced as problem areas by using the DBxK5 SAN® 1 GEBEDUR®.

### Removal of foam material

After over stitching, the foam material is taken away from the embroidery. Any remaining parts of the foam material are removed carefully from the embroidered design.



### The three-dimensional embroidery result

Now the 3-D image is available. An acceptable result is only achieved with precise stitching. Thread is covering the foam material without gaps and no stitches looped. The material must not be damaged and the 3-D-effect must be uniform.



**PROGRAM SINGLE- AND MULTIHEAD EMBROIDERY NEEDLES:**

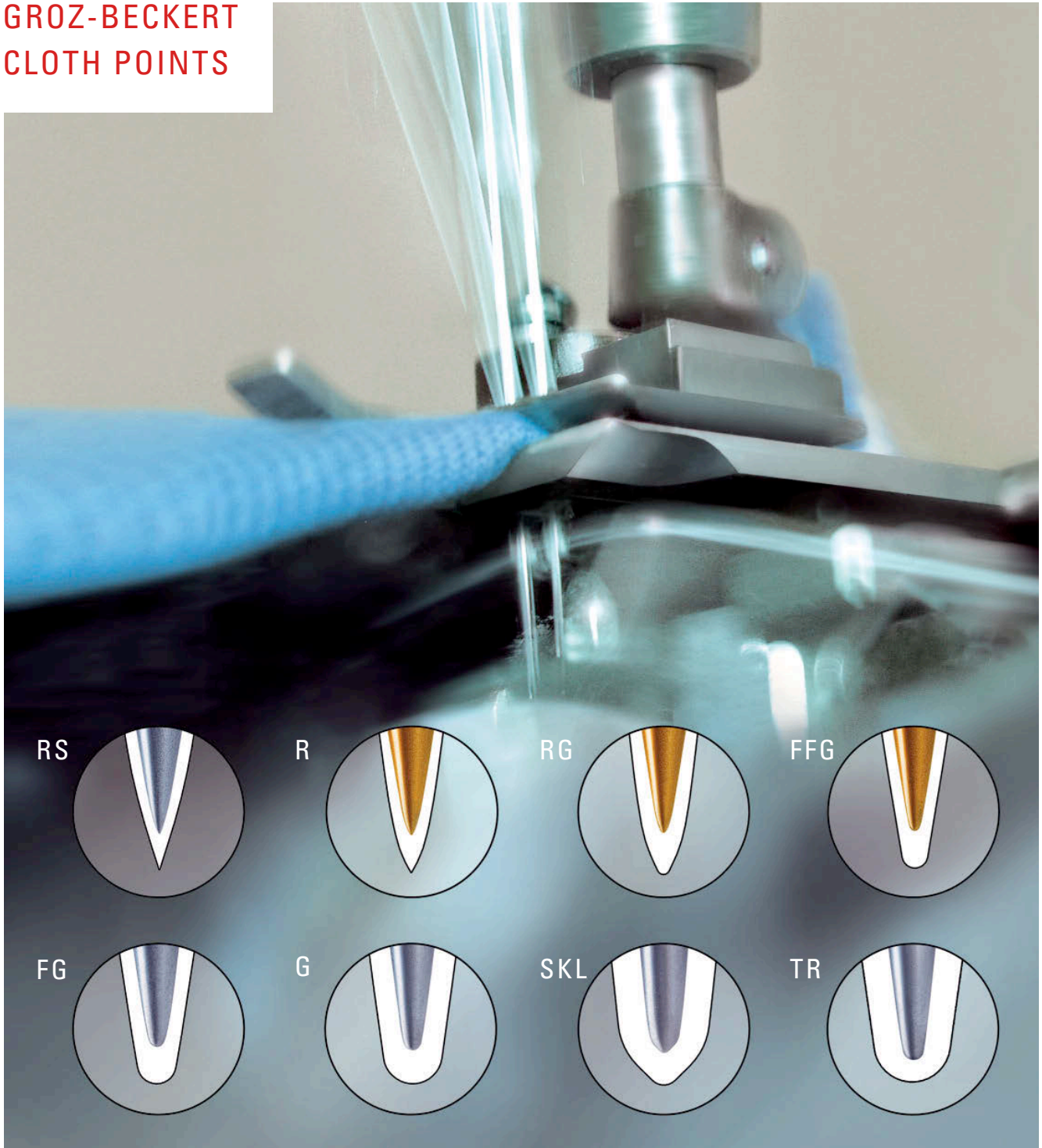
WILL BE EXTENDED WHEN REQUIRED

GB Designation	Point	Surface	Size range									
			55 7	60 8	65 9	70 10	75 11	80 12	85 13	90 14	100 16	110 18
DB x K5	RG	Chrome		●	●	●	●	●	●	●	●	●
DB x K5	FFG	Chrome		●	●	●	●	●			●	
DB x K5	FG	Chrome			●	●	●	●			●	●
DB x K5 KK	RG	Chrome			●	●	●	●			●	
DB x K5 KK	FFG	Chrome				●	●					
DB x K5 KK	FG	Chrome					●					
DB x K5 R	R	Chrome		●	●	●	●	●				
DB x K5 SAN® 1	RG	GEBEDUR®		●	●	●	●	●	●			
DB x 1	R	Chrome	●	●	●	●	●	●	●	●	●	●
DB x 1	FFG	Chrome	●	●	●	●	●	●	●	●	●	●
DB x 1	FG	Chrome	●	●	●	●	●	●	●	●	●	●
DB x 1	R	GEBEDUR®		●	●	●	●	●	●	●	●	●
DB x 1	FFG	GEBEDUR®		●	●	●	●	●		●	●	
287 WKH	R	Chrome			●	●	●	●			●	●
287 WKH	FFG	Chrome		●	●	●	●	●			●	●

EN | 01.2011



GROZ-BECKERT  
CLOTH POINTS








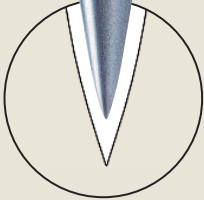

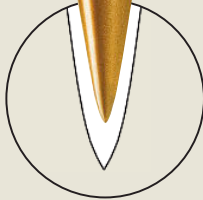

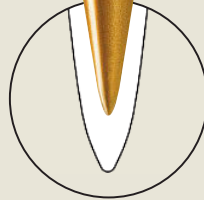

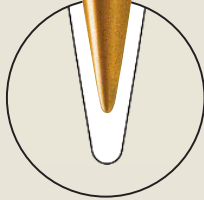
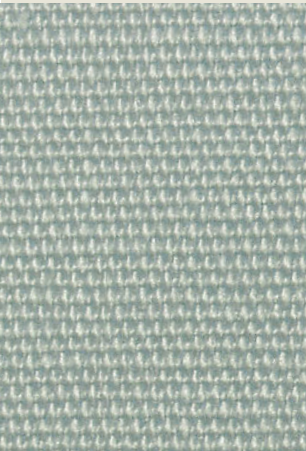
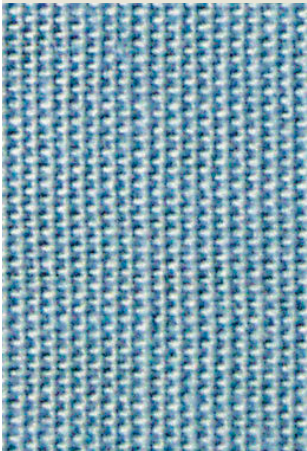


All textiles, whether woven, warped, felted or knitted, are sewn with a specific needle point shape to suit their structure.

The right choice of point has a significant effect on the finished sewing results. The right needle tip will give you the tip-top results you want.




## GROZ-BECKERT CLOTH POINTS


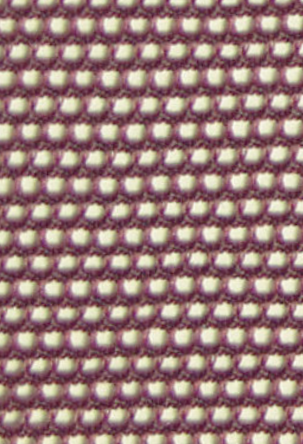
### SPECIFICATIONS AND APPLICATIONS

<p><b>RS</b> </p>	<p><b>R</b> </p>	<p><b>RG</b> </p>	<p><b>FFG/SES</b> </p>
 	 	 	 
			
<p><b>Sharp round point</b> Standard for blindstitch needles. For precise stitch sequences in lockstitch operations. A sensitive point, susceptible to damage. <b>Example:</b> Blouses, fine skirts and trousers, curtains</p>	<p><b>Regular round point</b> Most common for all kinds of lockstitch applications (FST 301), particularly for woven fabrics, artificial leather, coated fabrics. <b>Example:</b> Shirts, trousers, various kinds of garments</p>	<p><b>Round point with slightly rounded tip</b> Standard for all chainstitch operations (FST 401 and 406). <b>Example:</b> For fine, sensitive knitted fabrics, microfibre, multihead embroidery</p>	<p><b>Light ball point</b> For knitted fabrics and for wovens. <b>Example:</b> T-shirts, underwear, fine sweaters</p>





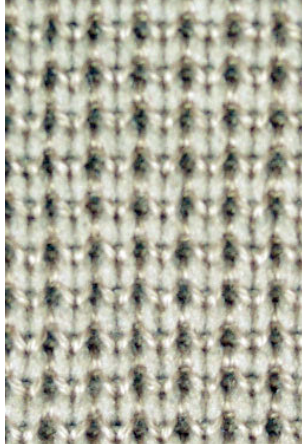
ALSO AVAILABLE IN GEBEDUR®

**FG/SUK** 






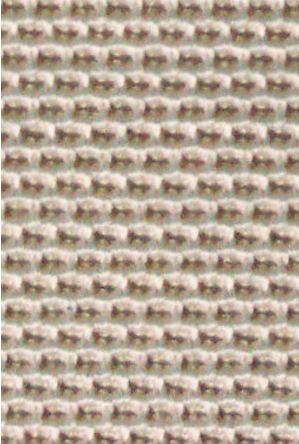
**Medium ball point**  
 For elastic fabrics with rubber or elastomeric contents.  
**Example:**  
 Sweaters, lace, underwear, Schiffli embroidery

**G** 







**Heavy ball point**  
 For very coarse and open structured elastic fabrics.  
**Example:**  
 Sweaters, cardigans

**SKL** 

**Special ball point**  
 For warp fabrics with high elastomeric contents.  
**Example:**  
 Underwear, orthopaedic clothes

**TR** 

**Special ball point**  
 For Schiffli embroidery applications.  
**Example:**  
 Curtains, tablecloth

## POINT CLASSIFICATIONS IN THE MARKET

Designation	Groz-Beckert-Equivalent	Designation	Groz-Beckert-Equivalent
B BALL	FG	RS	RS
BPL	FFG	S BALL	RG
EH	RG	S SET	RS
FFG	FFG	SES	FFG
FG	FG	SET	R
G	G	SET RT	RG
H BALL	G	SI	FG
H SET	RG	SIN	FFG
J BALL	FFG	SKF	G
L BALL	FFG	SKL	SKL
M BALL	FG	SPI	RS
NEW RD	RG	STU	RG
NYR	FFG	STUB	RG
R	R	SUK	FG
R-SPI	RS	TB	FFG
R-STU	RG	TR	TR
RD	R	U BALL	G
RG	RG	Y BALL	G

EN | 10.2012

Different needle manufacturers use different specifications for the same needle points

This guide will help you find the right Groz-Beckert specification.

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