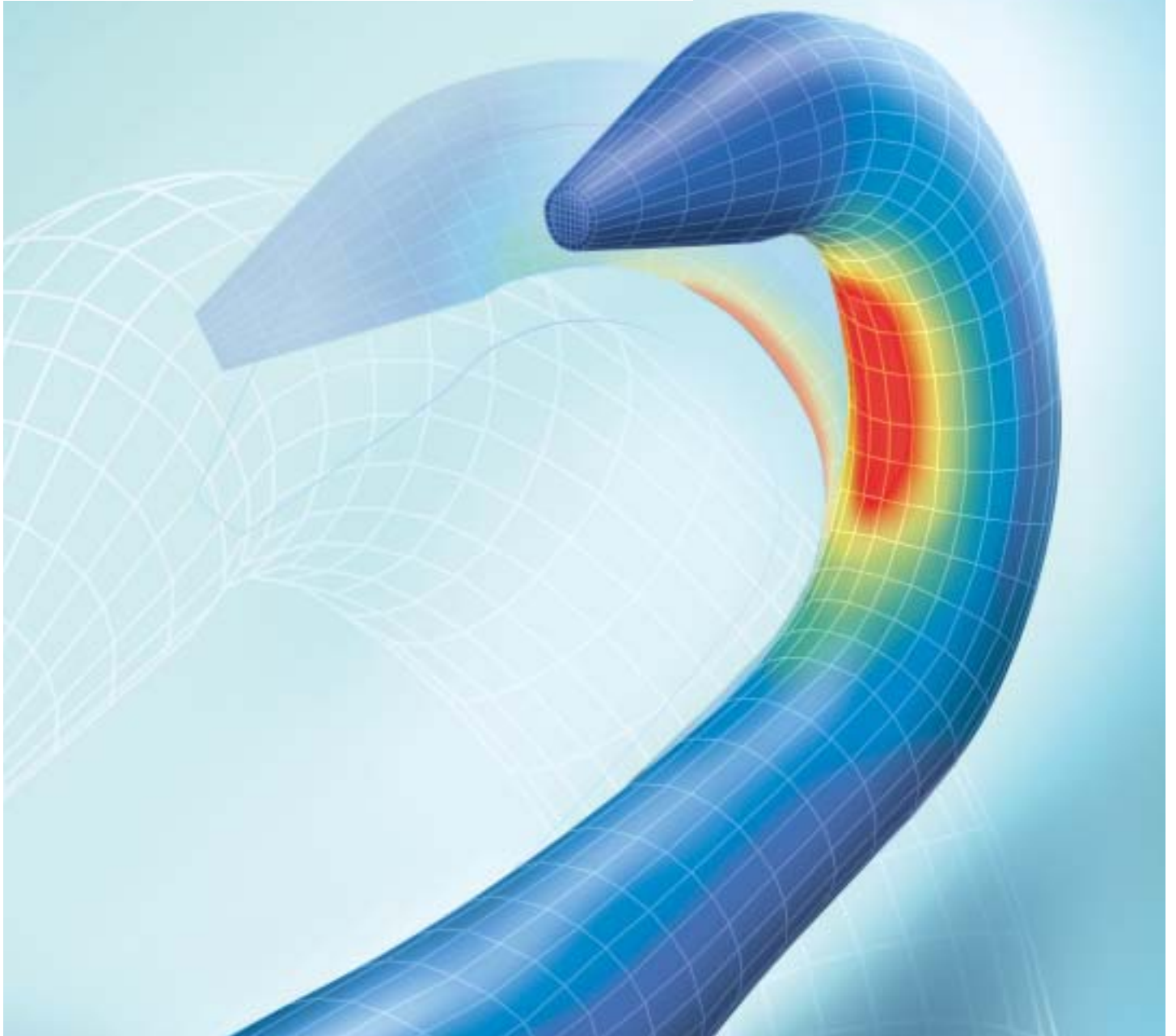


G 00 TECHNOLOGY PREVENTION OF NEEDLE LINES FOR EXTREMELY HIGH DEGREES OF STRESS



Where needles are subject to exceptionally high degrees of stress, needles with outstanding properties must be used. This is one of the many factors Groz-Beckert takes into account in the design of its needle hook.

Where yarns containing excessive slubs, knots or multithreads are being used, it is possible for needle hooks to be gradually bent open. The result: Longitudinal lines or double loops which sometimes come to light after finishing the knitted product. When the needle hook opens so wide that

it is no longer covered by the latch, no knockover takes place. Consequently, the needle head continues to accumulate yarn until either the needle head or the butt breaks under the strain, damaging cam parts and needle tricks.

G 0 AND G 00 IN COMPARISON

G 0 CONFIGURATION

Universally applicable

The **G 0 configuration** is designed to withstand normal hook stress levels and to

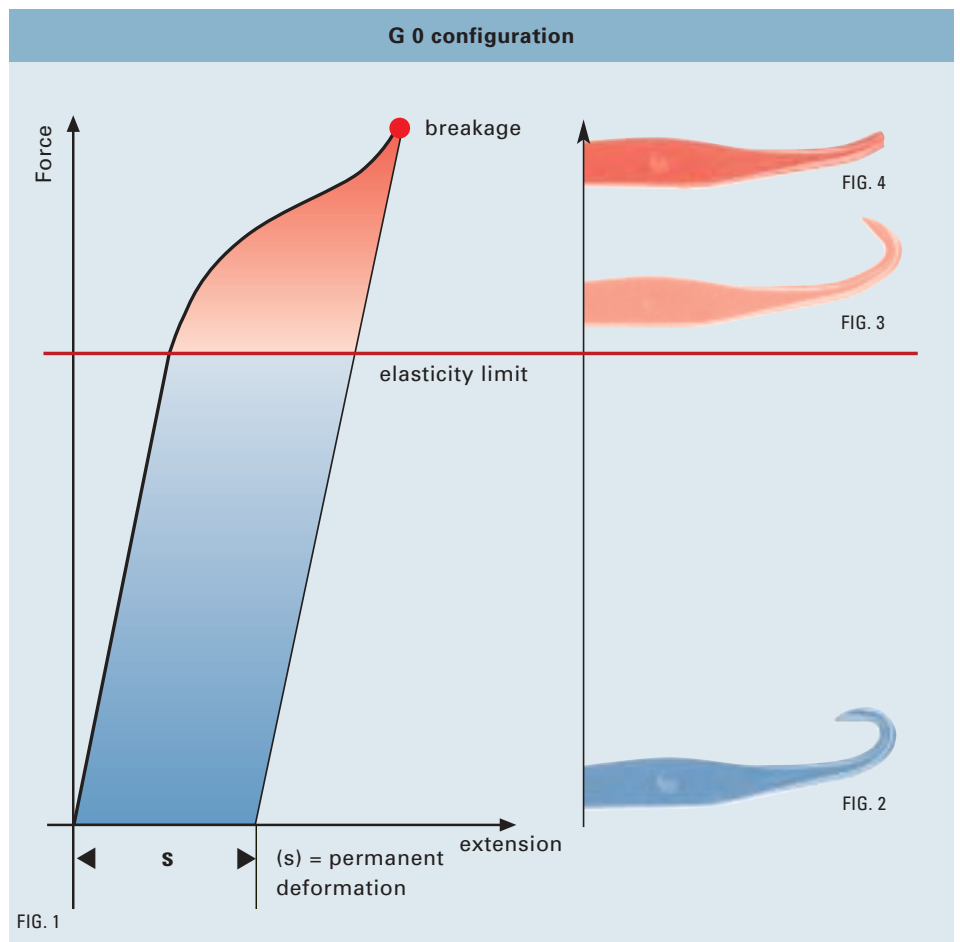
minimize needle consumption and is recommended in cases where excessive stress occurs only rarely. This version is particularly beneficial in cases where

hooks which have bent slightly open do not lead to striping. In this case, an overloaded and slightly opened needle continues to knit normally.

Explanation G 0 properties

If the force exceeds the elasticity limit of the hook material, plastic deformation results and the hook begins to bend open as illustrated in Fig.3. This zone is marked in red in the force extension diagram Fig.1. Once the maximum possible opening position is exceeded, the hook fractures as demonstrated in Figs. 4 and 1.

The G 0 configuration is designed to allow the hook to bend open before breaking.



Benefits G 0 configuration:

- Flawless stitch pattern for normal fabrics
- Hook breakage takes place only after exposure to excessive stress
- Minimal machine downtime due to needle breakage



- REFERENCE NEEDLE
- BENT OPEN HOOK
- BROKEN HOOK

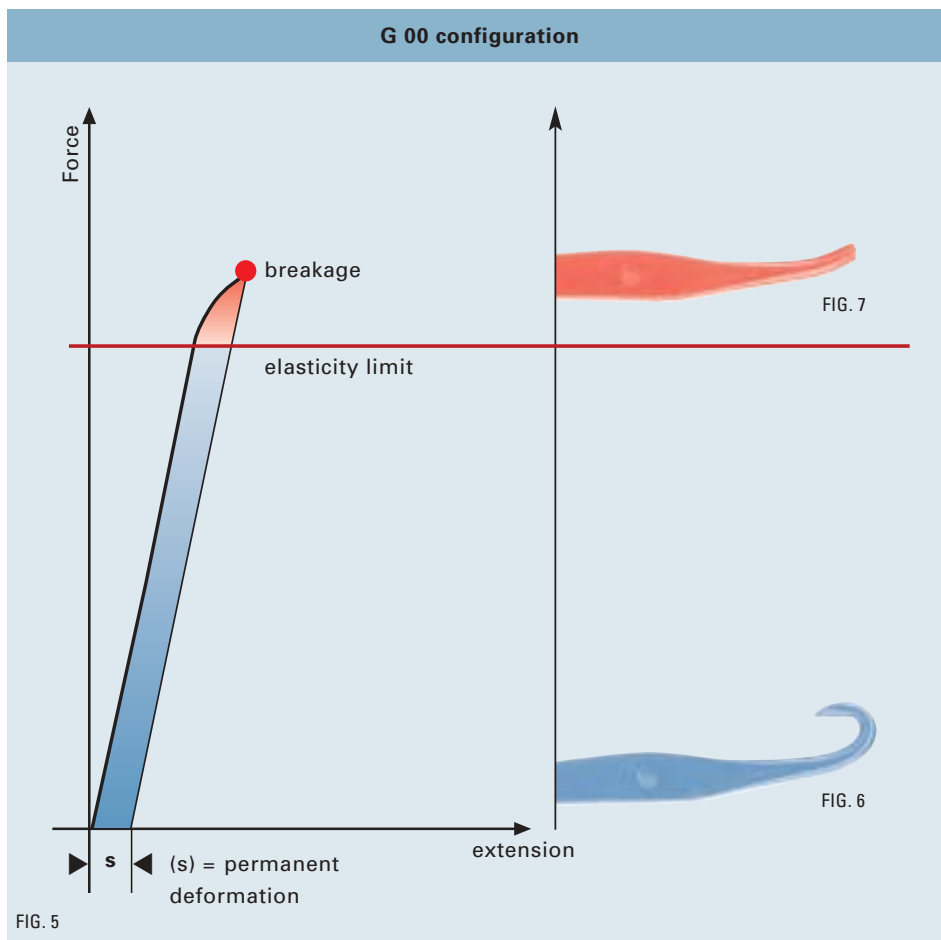
G 00 CONFIGURATION

For more demanding applications

The **G 00 configuration** is a more favourable alternative in cases where frequent needle overloading is anticipated or where even a slightly open hook leads to

unacceptable striping in the fabric. The hook breaks immediately on exposure to excessive stress, thus avoiding lines in the fabric caused by bent open hooks. Where stress on the needle is to be expected and the knitted fabric is more sensitive to

striping, needle consumption can be minimized using the G 00 version because only the broken needles have to be exchanged.



Explanation G 00 properties

Up to the elasticity limit, the G 0 and the G 00 version demonstrate identical characteristics. Due to its low amount of permanent deformation the hook of the G 00 version breaks just after passing the elasticity limit. Figs. 5 and 7.

Permanent deformation is practically not occurring during the knitting process.



■ REFERENCE NEEDLE
■ BROKEN HOOK

Benefits G 00 configuration

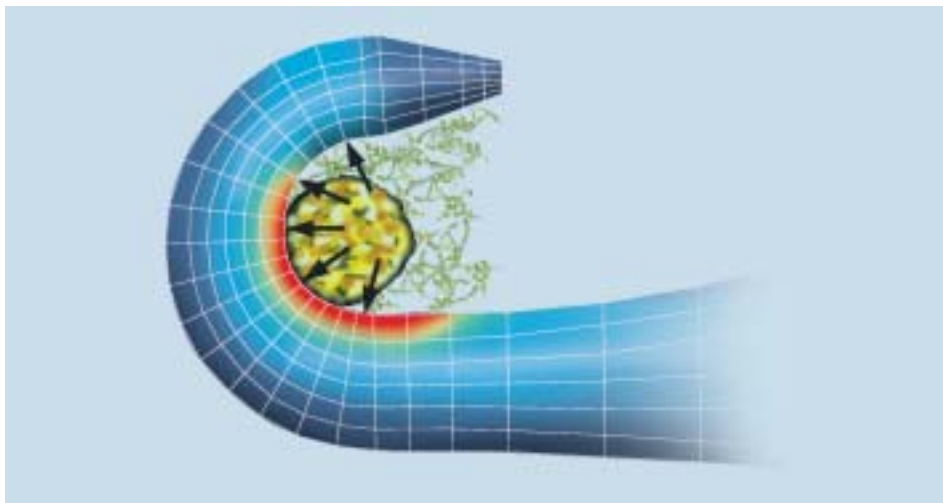
- Even with sensitive fabrics, difficult yarns and at high machine speeds, the possibility of lines in the fabric due to open hooks is eliminated. The hook breaks immediately on overloading. Lines caused by broken hooks are detected by the stop motion, and cause the machine to stop immediately.

- Result:**
- Less defective fabric
 - High product quality
 - Higher productivity
 - Higher degree of process reliability

APPLICATION G 00 TECHNOLOGY

Needle stress

The hook is exposed to stress by the processed yarn and the fabric take down tension. This stress level can increase twenty fold by slubs or accumulated abraded fibres carried along by the yarn. The tensile stress acting on the inside of the hook increases accordingly.



Example for the application of the G 00 Technology

The following calculation is based on a 28 cut circular knitting machine with 96 feed and 28 inch diameter, running at

34 rpm. The machine runs at a 87% efficiency and the fabric produced has 18 courses/cm.

Comparison G 0 and G 00 Technology

	G 0 Configuration	G 00 Configuration
Fabric produced (m/hrs)	95	95
Fabric produced (m/24 hrs)	2280	2280
Defect detection	visual, by knitter	automatically by hole detector
Defect detection after	approx. 25 m	approx. 0,5 m
Defective needles /day	6 needles with opened hooks	6 needles with broken hooks
Defective fabric per day [m]	150 m/day	3 m/day

In above example the daily amount of defective fabric is reduced by almost 150 meter. In many cases the defects are detected until after finishing, in those cases the daily amount of defective fabric knitted with needles without G 00 technology is significantly higher.

Groz-Beckert needles with **G 00** technology can easily be recognized by their needle description. Example: Vo 147.41 **G 0011**.

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