

THE GROZ-BECKERT® SPRING LOADED LATCH NEEDLE

FOR HIGHEST STANDARD OF MODERN LOOP FORMING TECHNOLOGY



The demands in the textile industry are permanently growing. The industry is in need of tools to meet these challenges in order to be competitive internationally.

In addition to the system parts, which are necessary for the needle selection, the heart of a loop forming machine is the needle. One of the most significant innovations in the needle development is the Groz-Beckert® spring loaded latch needle.

With this needle the user secures a high degree of flexibility concerning pattern possibilities and yarn usage as well as a high process security.

Quickly changing fashion trends, lavish designs and pattern techniques, complex knitting processes and high quality demand on the loop structure, can be implemented by the use of the spring loaded latch.

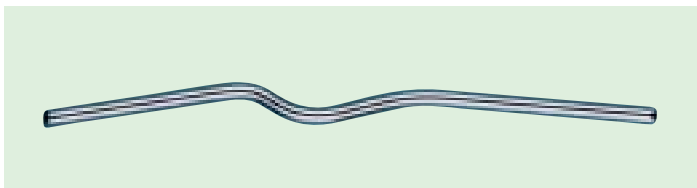


ADVANTAGE OF THE GROZ-BECKERT® SPRING LOADED LATCH

Sectional view – Spring loaded latch needle



This sectional view model of a needle shows the anchoring of the spring in the saw-slot. This is one of several possible variations of spring execution. The spring execution normally depends on the demand on the spring force as well as on the gauge of the needle and the space proportion connected with it.



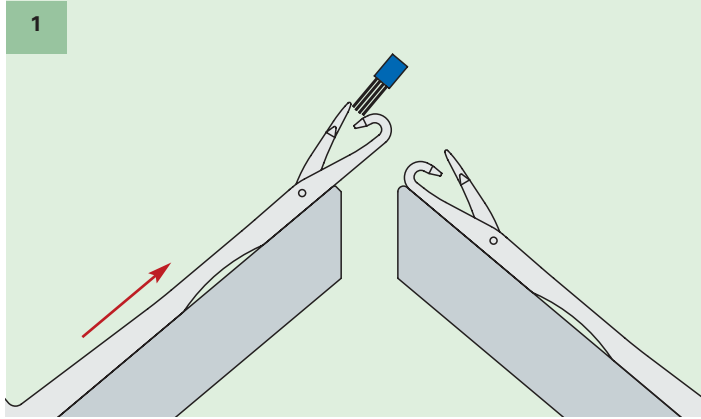
LATCH SPRING

A lot of advantages are reached in the loop forming process by this special design which guarantees the needle latch to spring back automatically in the two functional positions.

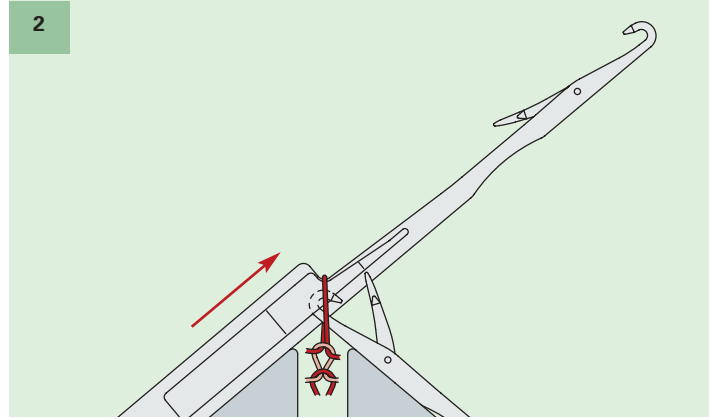
- **Uniform loop structure and high fabric quality.**
- **High process security and precise loop formation.**
- **Knitting with low take-down tension and thereby protection of the yarn.**
- **No limitation in pattern possibilities.**
- **Reduction of needle consumption.**
- **Higher productivity by less downtime.**



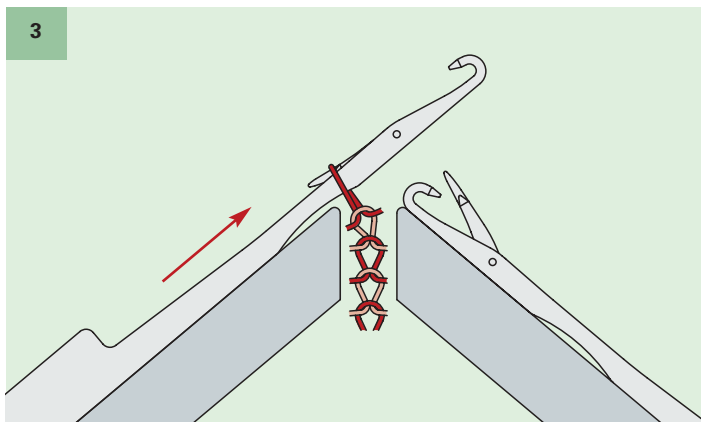
FUNCTIONING OF A SPRING LOADED LATCH



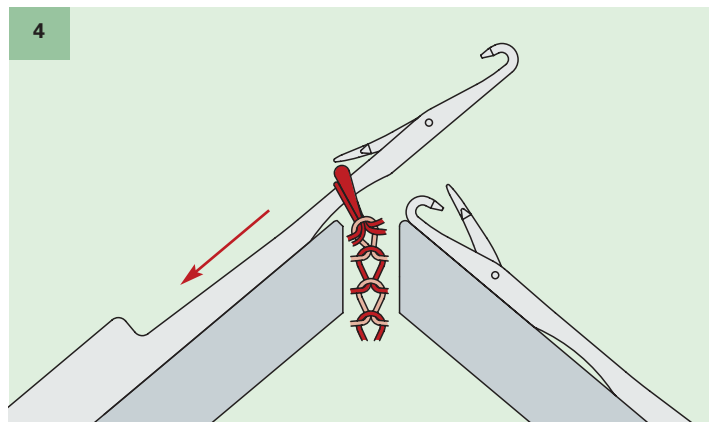
The latch is spring loaded and therefore returns from either shank or hook in the almost open or closed position (functional positions), thus simplifying the knitting-on process.



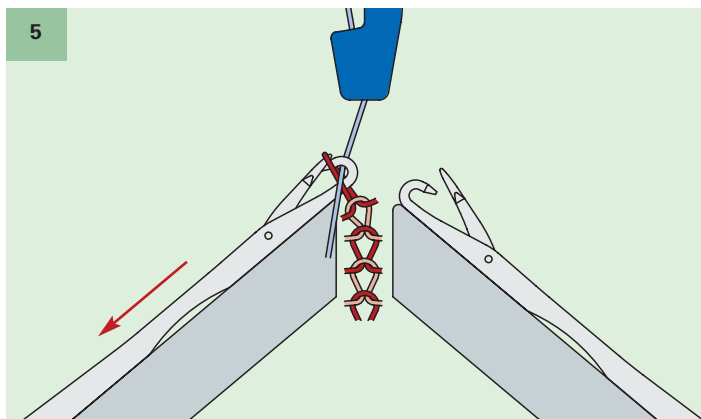
During loop transfer the latch opens safely and with enough clearance to the hook.



The latch lowers deeply into the needle shank in its open position, which facilitates a better loop gliding over the latch and prevents the latch from pulling up adjacent loops.



The latch springs back, preventing loose loops from being pushed back onto the open latch. Filaments of fluffy yarn are not spliced open and can be knitted without any problems. This also applies to the knitting of multi-threads.



Due to the spring effect the latch opens automatically after knock-over. Therefore an extended latch tip is not required. This allows an easier knock-over resulting in a much more uniform loop formation.

EXECUTIONS AND APPLICATIONS OF GROZ-BECKERT® SPRING LOADED LATCH NEEDLES

The Groz-Beckert spring loaded latch needle is produced for flat knitting machines and circular knitting machines up to 18 gg. In this gauge range the needle has got a thickness in the loop forming part of 0.47 mm in the flat knitting and 0.44 mm in the circular knitting field. The necessary precision for the production of spring loaded latch needles in these dimensions represents state of the

art production technology. Some years ago this was inconceivable for the specialists in the textile industry. Groz-Beckert took up the challenge and produces these spring loaded latch needles in large quantities for their customers world-wide.

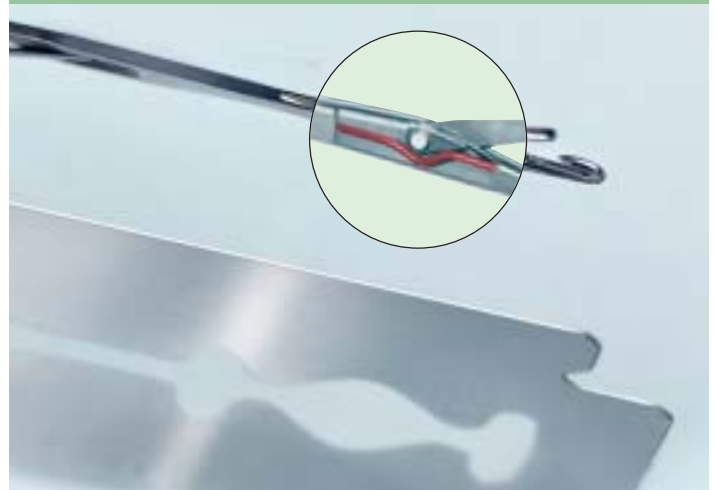
Spring loaded latch needle in comparison



NEEDLE THICKNESS IN THE TAPERED FRONT PART 0.47 MM / PENCIL WITH 0.5 MM CARTRIDGE

Today Groz-Beckert® spring loaded latch needles are mainly used in flat knitting machines which produce knitted goods for a variety of applications. Firstly, of course clothing textiles have to be mentioned. Our customers already frequently produce complete

Latch spring in comparison



LATCH SPRING THICKNESS 0.15 MM / RAZOR BLADE THICKNESS 0.11 MM

articles as a standard. But also in other fields like in the technical or medical areas spring loaded latch needles are used. Spring loaded latch needles are well suited for the production of three dimensional knit fabrics.

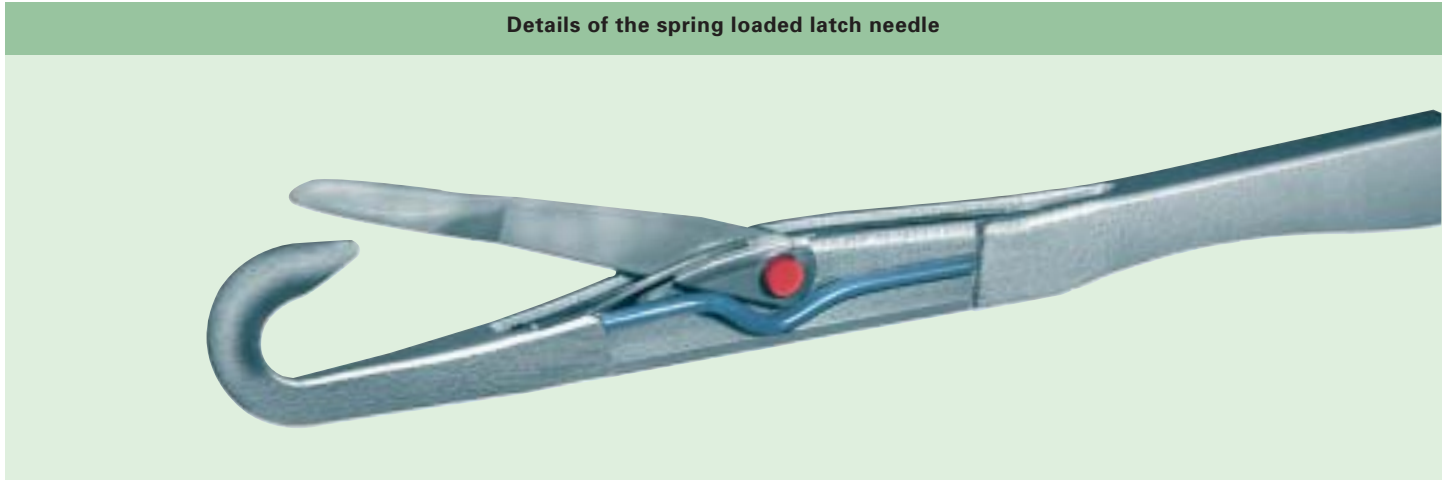
The reliable Groz-Beckert® spring loaded latch needles are offered for the following loop forming machines:

- Flat knitting machines
- Large diameter circular transfer knitting machines
- Large diameter double cylinder knitting machines
- Small diameter circular knitting machines
- Small diameter double cylinder knitting machines
- Raschel machines

THE LATCH BEARING

Application example for spring loaded latch needles

Details of the spring loaded latch needle

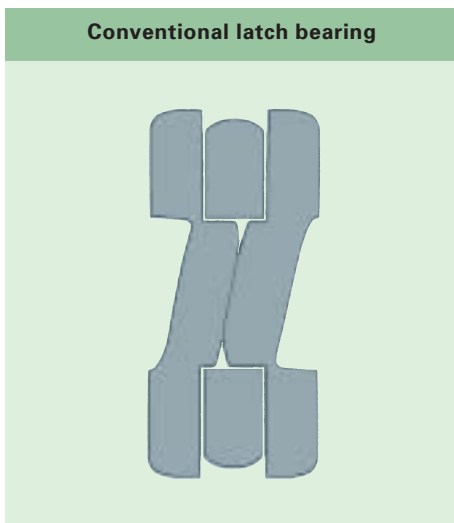


The latch spring takes up a lot of space in the cheek. This means longer, more flexible cheeks. Above all for thin needles, the degree of flexibility can be excessive. This increases the risk of latch loss.

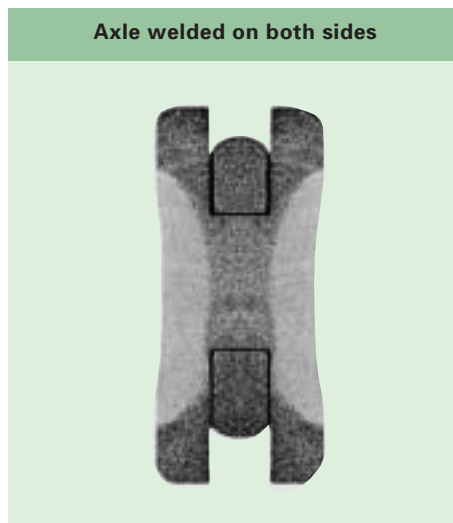
Double-sided axle welding restores the necessary stability to the cheek which is especially necessary with racking patterns in the flat knitting area.

Comparison

Conventional latch bearing



Axle welded on both sides



Benefits of double-sided axle welding

- Provides the maximum contact surface for the latch in the bearing.
- Defined clearance between latch, axle and cheek.
- Firm connection between the two sides of the cheek.

MAINTENANCE OF SPRING LOADED LATCH NEEDLES

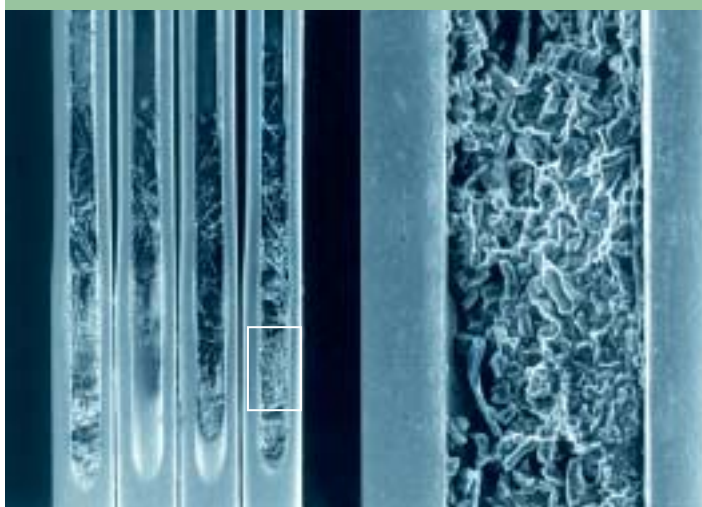
More than 15 years of experience in the use of spring loaded latch needles in flat and circular knitting machines result in the following maintenance advice.

The complex construction of a spring loaded latch needle requires a higher sensitivity by the needle user. Special care in machine maintenance, for example reduced cleaning intervals, of machines and spring loaded latch needles increases the lifetime and secures a long term function of the latch spring.

Maintenance advice

- Avoid excessive dirt build up in the needle slot by frequent cleaning of the needle bed.
- Controlled blowing of the needles only in the retracted position ensures that the spring latch is not blown out.
- Controlled and, if necessary, separated yarn feeding in order to reach an optimal yarn tension and feeding position.
- Shorter lubrication intervals for the needles in the area of the slot and the use of a light non-resining and washable oil.
- Avoidance of mechanical damage on the needles by optimal machine adjustments (for example take-down tension, stitch cam, yarn guide).

Clogged slot



MAGNIFICATION OF 4 USED NEEDLES WITH VERY EXTENSIVE RESIDUES IN THE NEEDLE SLOT

Bent latch



MAGNIFICATION OF A USED NEEDLE WITH BENT LATCH CAUSED BY CONTACT WITH THE YARN GUIDE

In both cases an interference of the function of the latch spring system is caused. Paying attention to the above advice can avoid such needle contamination and needle damage. The lifetime and performance of the spring loaded latch is increased distinctly.

GROZ-BECKERT KG

Postfach/P.O. Box 10 02 49

D-72423 Albstadt

Tel. (0 74 31) 10-0

Fax (0 74 31) 10- 27 77

e-mail: contact@groz-beckert.com

www.groz-beckert.com