



## THE SPECIAL APPLICATION NEEDLE MR

– DEVELOPED FOR AUTOMATED SEWING PROCESSES  
WITH MULTIDIRECTIONAL FEEDING SYSTEMS



In the clothing industry, the shoe industry, and in the processing of technical textiles, an increasing number of computerized sewing machines are in operation. The same requirements apply to all these fields of application:

- **High productivity coupled with maximum process reliability.**
- **Flawless, perfect seams with maximum load-bearing capacity.**

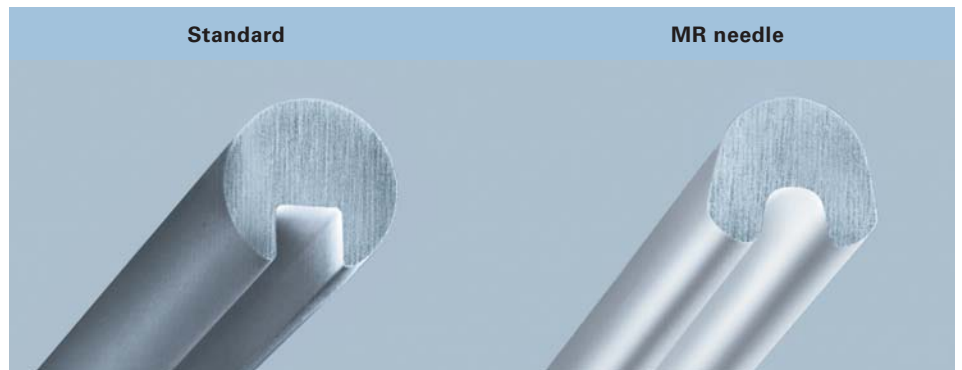
These requirements place stringent demands on sewing machine needles working in automated sewing processes. Standard sewing needles are frequently unable to meet these needs, resulting in problems during sewing such as needle breakage, untidy seams (skipped stitches, thread breakage) and material damage.

**The answer to all these problems is the Groz-Beckert MR needle.**

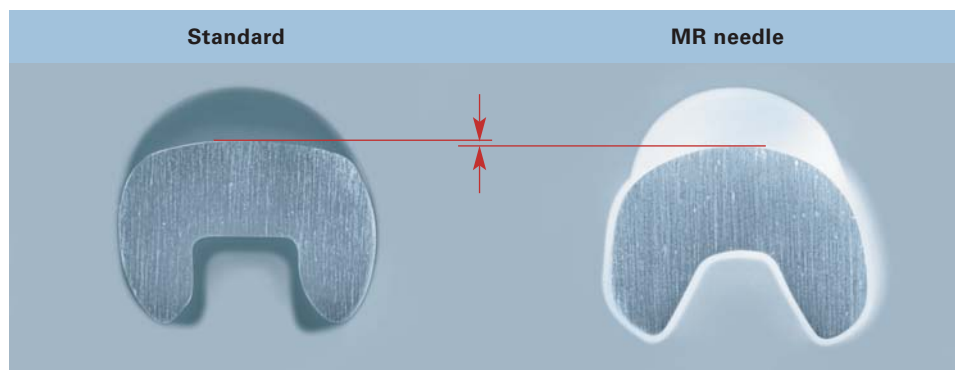
## THE MR NEEDLE AND ITS SPECIAL FEATURES

### Stability

With its special blade and scarf geometry, the Groz-Beckert MR needle offers outstanding bending resistance (deflection resistance), lending it extreme stability over its entire working area.



BLADE CROSS-SECTION

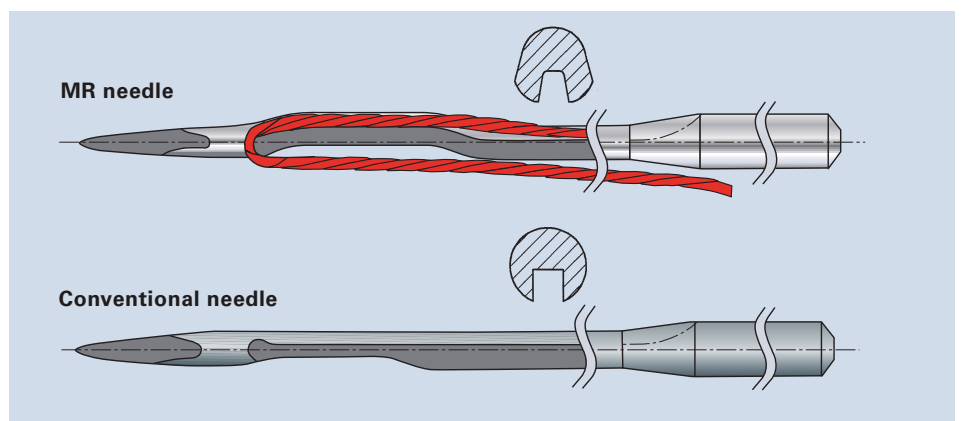


SCARF CROSS-SECTION

Added to this is an unusually deep and extended scarf. This permits extremely tight adjustment of the looper to the needle. The deep thread groove, extending also into the eye area, guarantees optimum protection of the thread.

Benefits:

- **Less needle deflection**
- **Less needle breakage**
- **Fewer skipped stitches**
- **Less thread breakage**



### Multidirectional sewing

Computerized sewing machines are capable of producing seams with frequent changes of sewing direction at a constant sewing speed. This type of operation is known as multidirectional sewing



**Cross-section at centre eye**

When penetrating the material, a needle reaches its maximum penetration force in this needle area. This increases to a disproportionately high degree as needles with a bigger size and consequently a bigger cross section at centre eye are used. The MR needle has been designed to ensure that its penetration force remains significantly below that of a standard needle.

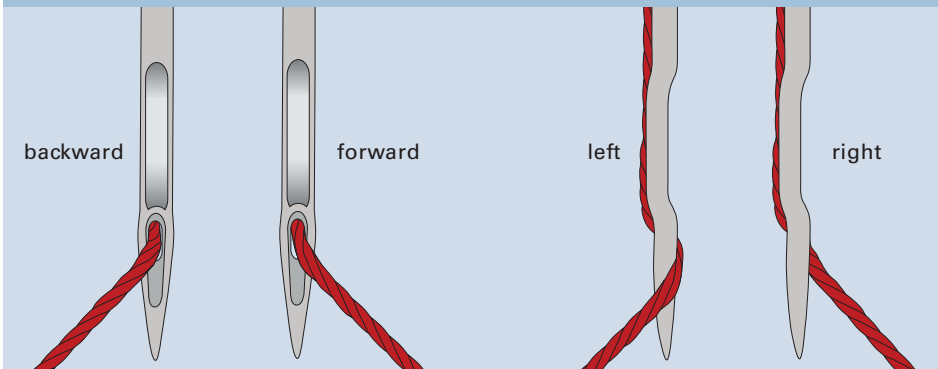


STANDARD



MR NEEDLE

**Sewing direction**



**Thread loading**

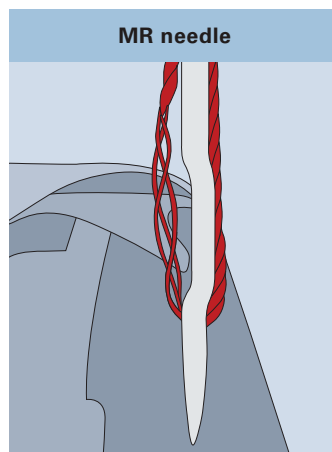
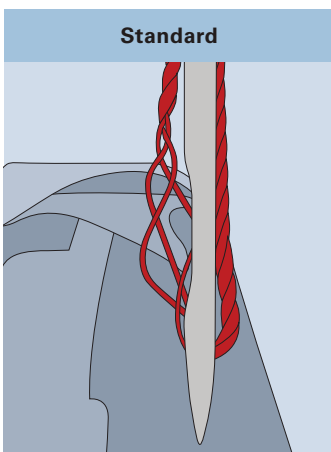
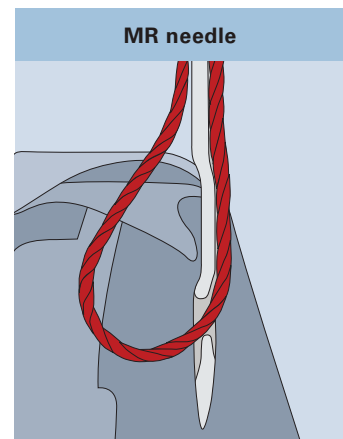
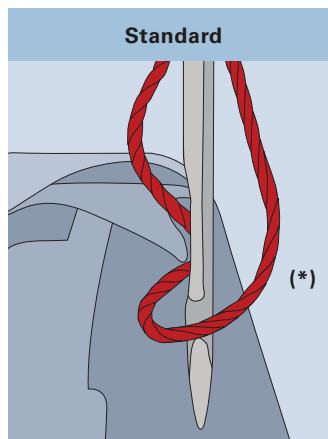
When changing the sewing direction, the sewing thread is pulled out of the needle eye in different directions. During its downward stroke, the needle slides along the tensioned sewing thread. This can result in changes in the thread twist, and consequently to instable loop formation.

**Loop formation**

The special asymmetrically shaped thread sliding area inside the eye of the Groz-Beckert MR needle guarantees stable loop formation even under unfavourable sewing conditions, eliminating the possibility of negative loop formation (\*) and thread twist.

The benefit:

- **Fewer skipped stitches**



**Thread pickup**

Difficult sewing operations can result in the thread unwinding during loop formation. Single yarns or filaments can be picked up and torn off by the looper point. The risk of unwinding is reduced by the special thread guiding area of the Groz-Beckert MR needle. Its extreme scarf depth permits very tight looper adjustment, resulting in optimum security during loop pick-up.

The benefits:

- **Less thread splicing**
- **Less thread breakage**

