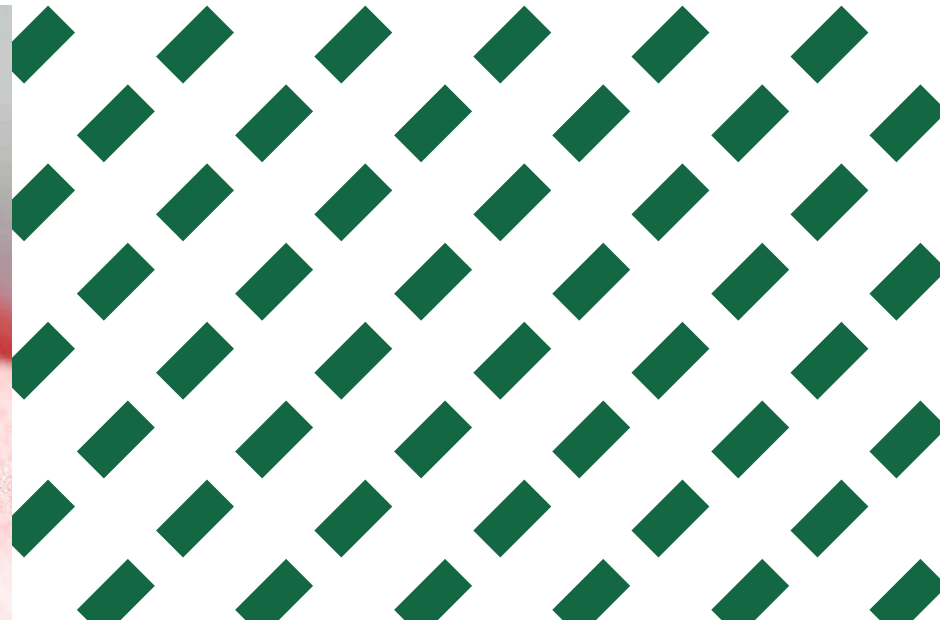
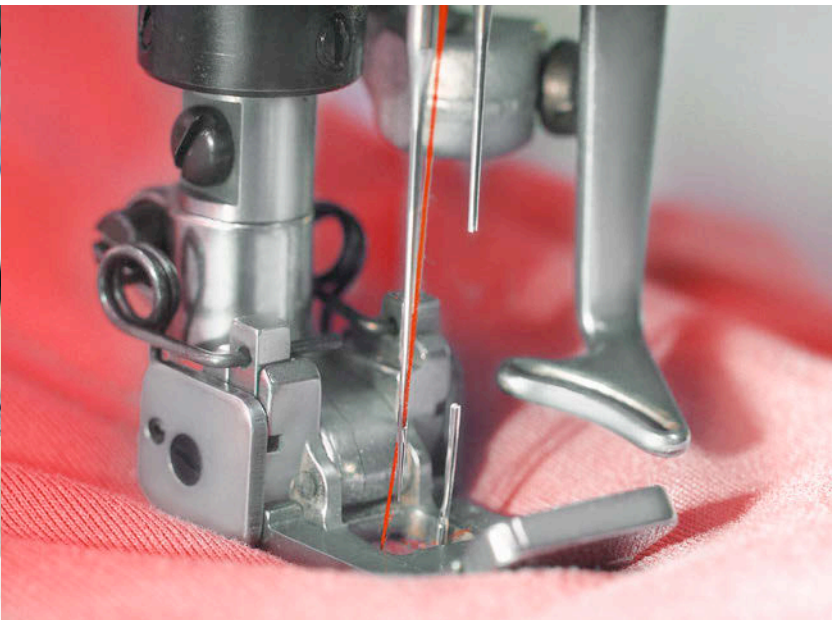


Sewing

INH Quality Management – Ideal Needle Handling



INH Quality Management from Groz-Beckert

Groz-Beckert is the world's leading supplier of industrial machine needles, precision parts and precision tools, as well as systems and services for the manufacture and joining of textile surfaces. With around 70,000 product types, Groz-Beckert serves the fields of knitting and warp knitting, weaving, felting, tufting, carding and sewing. Since the year 1852 Groz-Beckert has represented diversity, precision and quality – and provided its customers and partners with comprehensive support along the full length of the textile value chain.



After Groz-Beckert extended its production range in 1980 to include sewing and shoe machine needles, this product division has grown to become one of the premier suppliers in the field of sewing technology. The high standard of product quality and numerous further developments and innovations have meant a continuous increase in market share.

But it is not only a comprehensive and high-quality product range which makes Groz-Beckert an invaluable partner. Next to different services such as the sewing and joining service and the online customer portal, Groz-Beckert supports its customers also before, during and after the production process. On this basis, INH Quality Management (Ideal Needle Handling) was born out of the experiences gathered from

numerous sewing plants and brand owners. This sets out a process for the handling of sewing machine needles within the production process. Besides the concordant regulation in order to adhere to the compliances, INH also contributes to environmental protection, improvement of the occupational safety and increase of productivity.



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Current situation in the apparel industry

The apparel industry today faces a wide range of challenges. Today, alongside the general demands for maximum productivity, maximum occupational safety and a wide range of environmental aspects also play an enormous role. In addition, sewing companies are required to comply to ever stricter regulations – imposed by brand owners and buying houses – relating to the handling of sewing machine needles. Broken and damaged needles are of particular relevance here.

Alongside these demands, companies also attach a high degree of importance to defining their processes in line with the rules of i.e. Lean Production,

5S or Kaizen. This can lead to conflicts of interest between the operating procedures of brand owners and other defined procedures within the company.

compliance

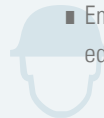
Handling of needles

- Compliance to operating procedures set by customers and brand owners



Occupational safety

- Health protection
- Safe working conditions
- Ergonomics at the workplace
- Employee training and further education



Environment

- Smallest possible carbon footprint
- Recycling of used materials



Productivity

- High output
- Minimal proportion of waste and rejections
- Reduced machine downtime



Previous handling of sewing machine needles

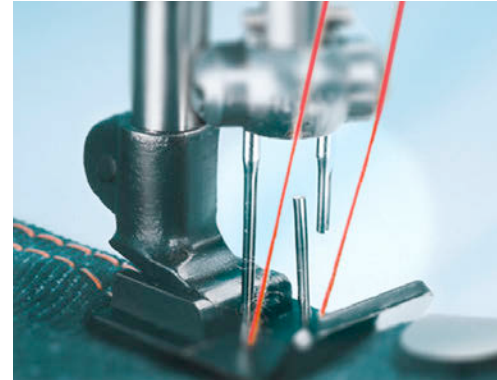


Strict regulations from international brand owners and buying houses

In order to avoid compensation claims from subsequent end consumers of sewn products, brand owners and buying houses set strict regulations of how to proceed in the event of damaged or broken needles. Steps must be taken to prevent needle parts (even the tiniest splinters) remaining in the finished garment, providing reasons for subsequent complaint. In addition, the operating procedures are meant to help monitor needle consumption and enhance productivity.

No uniform standard

There is no worldwide standard for the handling of sewing machine needles. In other words, each single brand owner and buying house has its own regulations. Consequently, a change of the buyer often means an adjustment of the work process, too. Added to this, the regulations are often not cohesive, meaning that gaps can occur in the process. To prevent needle contamination, however, these regulations are accepted even by Lean or Kaizen-oriented factories.



Very high effort

Needle exchange stations as well as different practices for needle exchange, needle storage and needle disposal are part of the daily work and often result in excessive time and effort. Therefore, a needle breakage can lead – due to the extremely long and thorough search times, which are set by some brand owners – to bottlenecks in production.

Needles and waste

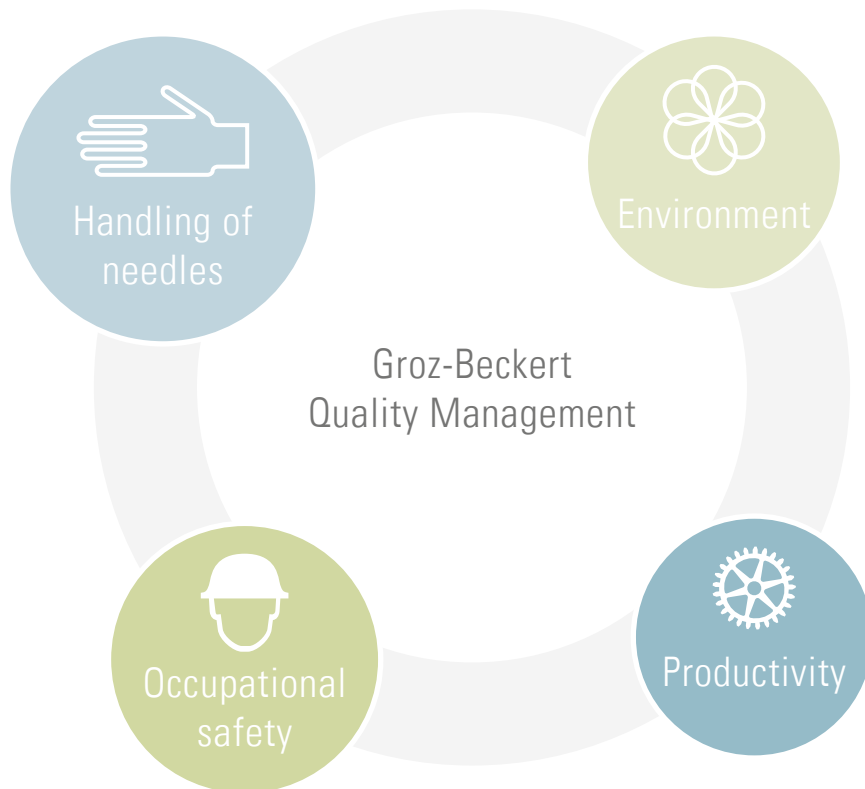
Needles have an impact on various aspects of the 7 types of waste:

- Transportation
- Inventory
- Movement
- Waiting times
- Overproduction
- Poor technology/process
- Defects/rework



INH Quality Management

As a needle manufacturer which places the full weight of its support behind its customers, Groz-Beckert offers a system of quality management which ensures the trouble-free and time-saving handling of broken and damaged sewing machine needles. The patented INH (Ideal Needle Handling) process ensures that different operating procedures set out by brand owners are adhered to using a standardized procedure, and also supports you in meeting other requirements such as compliance with environmental principles or increasing your productivity.



What INH Quality Management has to offer:

Handling of needles

INH offers the individual creation of a process which takes into account all previous operating procedures. That way, it is accepted by brand owners and buying houses and can be applied all around the world.

Occupational safety

With the determined handling of broken needles and optimum ergonomically designed working equipment, INH ensures the best possible care of sewing personnel and others who work with needles. It also encourages personnel to be self dependent.

Environment

INH ensures that every sewing machine needle (and its packaging) used in a factory leaves the facility complete and in a condition capable of recycling. In this way, the CO₂-balance can be improved.

Productivity

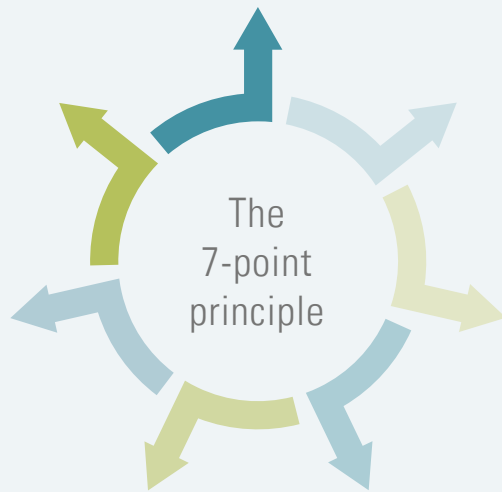
INH reduces the amount of time and work involved in dealing with broken and damaged needles, ensuring higher work performance due to fewer production downtimes. At the same time, waste is reduced or even avoided.

The basis of INH Quality Management

INH was developed in keeping with the 5S and Lean Production method, and with elements of Kaizen, in particular the different types of waste (Mudas). Consequently, INH is based on another Muda: Unused expertise, which in this case is made available by Groz-Beckert.

The 7-point principle

Alongside operating procedures from the previously named process methods, INH also has its own regulations which can be described using the following 7-point principle:



1. Definition of objectives
2. Utilization of internal knowledge and resources (Groz-Beckert and customer)
3. Utilization of external knowledge
4. Review of the existing regulations of brand owners and buying houses and definition of these as the minimum target
5. Elaboration of the process
6. Provision of tools, work equipment and training
7. Continuous inspection, improvement and development of the process, tools and work equipment as well as training



The creation of an INH process

INH specifies the individual creation of a process for handling sewing machine needles in sewing plants. In this way, a close-knit process is described for the entire history of a needle from its entry into the company through the documentation of needle breakage to the point at which it leaves the factory in a recyclable condition.

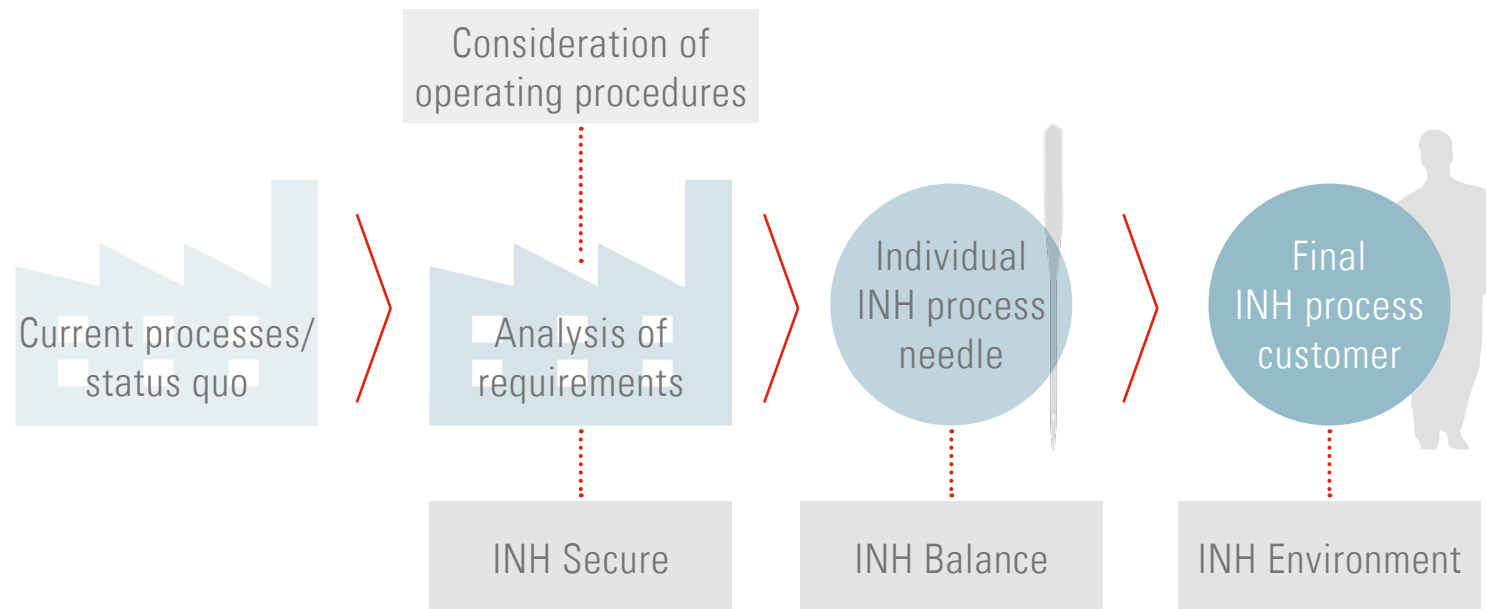
The introduction of INH in a factory starts with an analysis of the existing processes. This entails a thorough review of the current procedure with regard to the handling of sewing machine needles.

Depending on the operating procedures of the brand owners and buying houses and the existing procedure, the INH process is individually structured. Three defined application stages are applicable as a guideline: INH Balance, INH Secure and INH Environment.

These encompass all possible components for the subsequent process. Qualified trainers remain involved in the analysis of all related divisions within the factory. In this way, the individual requirements of the company are gathered and considered.

Handling of sewing machine needles in sewing plants:

- Storage of unused needles
- Issue of unused needles to production
- Approach for needle exchange
- Process flow in the event of needle breakage

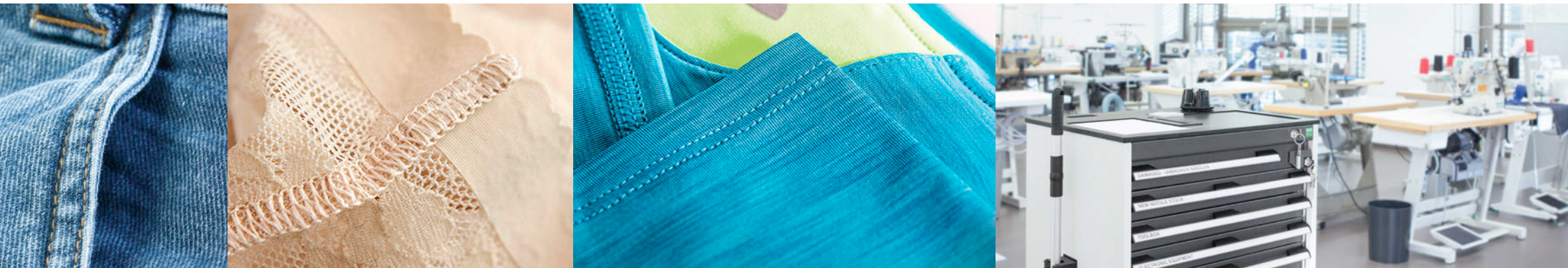
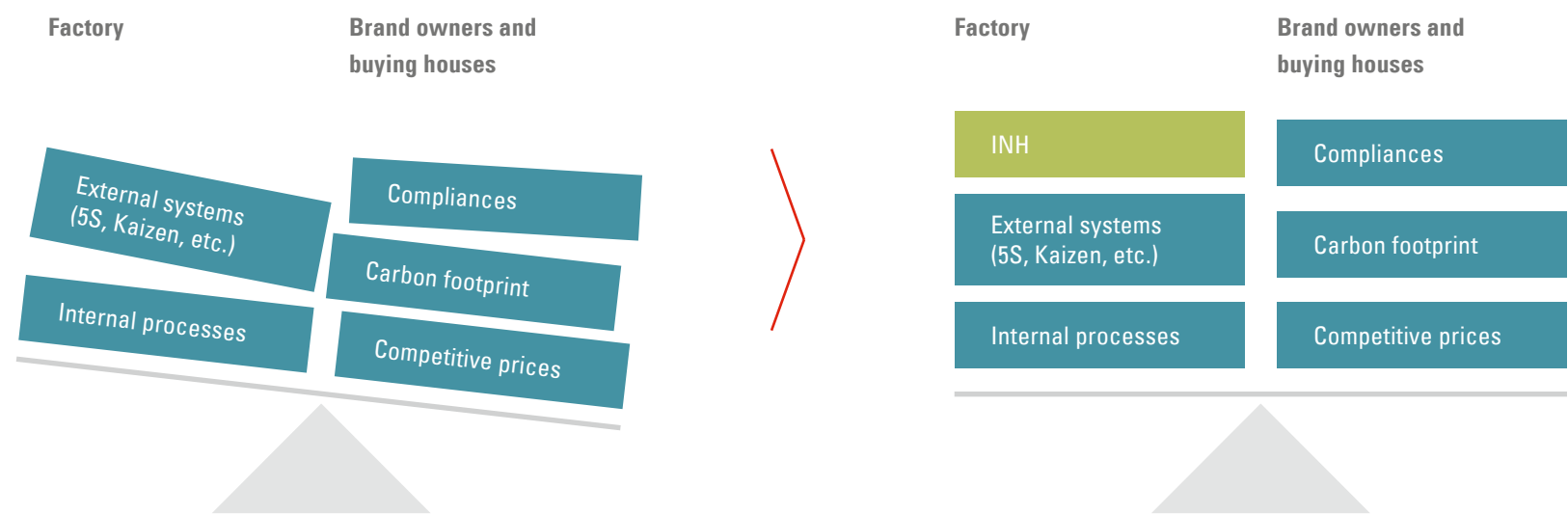


Levels of application:

1. **INH Secure:** Identification of the existing processes and their integration into the INH process
2. **INH Balance:** Expansion of the existing processes by elements of INH, in order to obtain a comprehensive INH process
3. **INH Environment:** Analysis of related processes and their integration into the INH process

The INH process at a glance

The individually developed INH process closes the gap between existing processes and regulations to be adhered to.
This process is continuously reviewed and adjusted if necessary.



The accessory

After the determination of the individual INH process, the required accessory is selected. All accessories have been especially designed for the INH Quality Management and are provided together with the process. When creating the work equipment and tools, all requirements made on the Quality Management were taken into consideration and realized. All components correspond to the highest product quality that is standardized by Groz-Beckert, are conform to ergonomic principles and those of a 5S workstation and form the basis for the work process “needle exchange” in compliance with Lean.



More information on
the needle dispensing
trolley



Needle dispensing
trolley – basic version

Needle dispensing trolley

The trolley forms the centerpiece of INH. It replaces the entire needle exchange station. It is used for the storage of new needles and various tools, and as collection point for used/broken needles.



Worktop



Storage of unused
needles



Various tools



Needle return box

For the collection and return of broken and damaged needles, the INH Quality Management provides the needle return box. The inserted needle passport contains all relevant data required for documentation.

Additional features of the trolley:

- Separate storage systems for needles and packaging
- Emergency kit
- Special magnetic broom for finding needles and needle parts
- Hanging folder for the storage and documentation of broken needles

Collecting bins for used needles

To ensure the environmentally responsible disposal of used needles and empty packages, the INH Quality Management provides different collecting bins in which needles and packages can be collected separately. This enables that they can be depolluted correctly.



The collecting box for damaged and used needles which is placed in the needle dispensing trolley is saved with a separate closing system.

Collecting cylinder in use at companies such as Strellson

Collecting bin in the needle dispensing trolley

The INH trolley features two different collecting containers made of acrylic. In the top drawer there is the container for used needles which can be thrown into the slot in the worktop. In the lowest drawer there is a further container which is used to collect empty packages.

Collecting cylinder

For the collection of empty packages outside the needle dispensing trolley, the collecting bin can be used. For the collection of used needles, the collecting cylinder has been designed. Both are firmly shut at the top by a lid which, depending on the model, has a suitable posting slot for either needles or empty packages. Furthermore, the cylinders are ideally suited for being placed in a clearly visible location in order to point out to the application of the INH Quality Management.

Documentation of needle breakages

One of the most important operating procedures set out by brand owners and buying houses is to document all needle breakages and ensure the appropriate storage of all needle fragments. To date, there has never been a generally applicable solution for this process step. In addition, disposal of the documentation following the specified retention period has also posed a problem. Here too, INH Quality Management from Groz-Beckert comes into play, offering a variety of solutions.

Needle storage sheet

For sticking, documenting and physically storing the broken needles, the needle storage sheet can be used. Up to 10 needles can be stored on the DIN A4 sheet. The date and time of needle breakage, the machine number, line and machine operator as well as the number of needle fragments can be recorded here in seven columns. The fragments are pasted on in the last column. To enable a permanent storing of the needles, the sheets are made out of a durable paper with a weight of 250 g/m².

Used needle storage system











GROZ-BECKERT®

Date	Time	Machine	Line	Operator	No. of parts	Needle parts (paste here)

Empty needle storage sheet

Used needle storage system

GROZ-BECKERT®

Date	Time	Machine	Line	Operator	No. of parts	Needle parts (paste here)
12.09.2016	09:35	11	2	Jill	3	
12.09.2016	09:47	14	1	Greg	3	
12.09.2016	11:20	15	2	Sarah	4	
12.09.2016	14:48	12	1	Nadia	2	
12.09.2016	16:10	6	1	Anna	3	
13.09.2016	08:10	7	2	Erica	2	
13.09.2016	11:22	8	1	Hugo	2	
13.09.2016	15:31	27	2	Uma	4	
13.09.2016	15:47	18	1	Andrea	3	
13.09.2016	16:05	2	1	Tedi	2	

Completed needle storage sheet

Smart INH – the digital documentation of needle breakages

To avoid the manual documentation of needle breakages and the physical storage of the broken needle parts, the INH Quality Management provides a digital solution, which is Smart INH, too. By means of Smart INH, the broken needle parts are photographed and digitally stored. Thus, damaged and broken needles can be disposed of immediately and in an economy-friendly way.

The digital components of Smart INH

Smart INH, which is patented, consists of two software components: the app INH@site and the administration software INH@office. The app is installed on a tablet device that is fixed on an alternative worktop of the needle dispensing trolley. When a needle breaks, the broken needle parts are not stuck on papers, but are photographed by using the app directly at the trolley.

To ensure that the broken needle parts are optimally caught by the camera of the tablet-PC, they are placed into the needle return box. Afterwards, the box is put onto the designated rack on the needle dispensing trolley where a LED-unit provides the necessary lighting. Now, the broken needle parts can be photographed and stored. After taking the picture, the broken needle parts are thrown into the slot on the worktop.



INH@site

For Smart INH, the worktop disposes of two separate slots which enables that the needles can be collected in two separate boxes. Depending on internal control procedures, the usage of the separate slots can be selected individually: for example separated by day and night shift or separated by broken and not broken needles. All needles that are collected in this way can be disposed of later in an environmental-friendly way.

Complete documentation

When applying Smart INH, not only the needle breakages, but all other needle exchanges, too, can be documented. This way, sabotage can be avoided, and a complete chain of evidence arises.

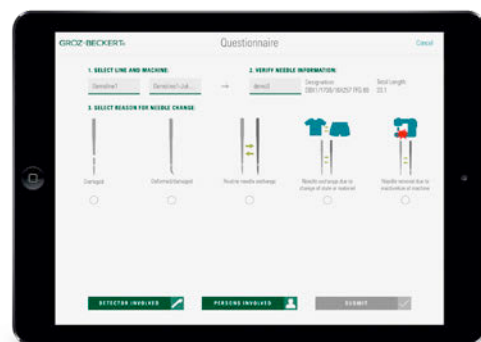


Needle dispensing trolley with alternative worktop for Smart INH



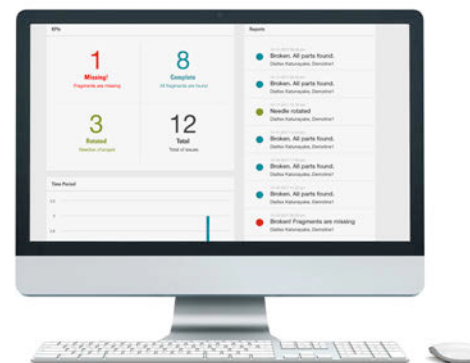
The INH software

The app INH@site and the administration software INH@office are the basis of Smart INH. Ongoing updates and improvements of the software on the part of Groz-Beckert guarantee that an up-to-date version is available at any time.



The app INH@site for tablet devices

In case of a needle breakage or a needle exchange, a picture of the needle parts is taken with the app INH@site. Following, the targeted and user-friendly interface guides you through the information retrieval in single steps and allocates the picture with all relevant data like time and place of needle breakage or production order. Furthermore, the datamatrix code in the needle return box builds a link with the administration software INH@office in order to obtain other required information. In this way, a picture-data set is created and stored digitally so that it can be called up at any time. Furthermore, an integrated user systems ensures that the app can be used by authorized persons only.



The administration software INH@office

For the input and administration of all relevant data like production orders, sewing lines with machine park or operators, the administration software INH@office is provided. The dashboard shows a summary of the current situation. Additionally, there is the possibility to do different evaluations and to call up, review and administrate the picture-data sets. Also the authorization of the app-users can be administrated there.

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