Loepfe



YarnMaster®

PRISMA CLEVER YARN CLEARING

LabPack (Option)

Online Laboratory

LabPack

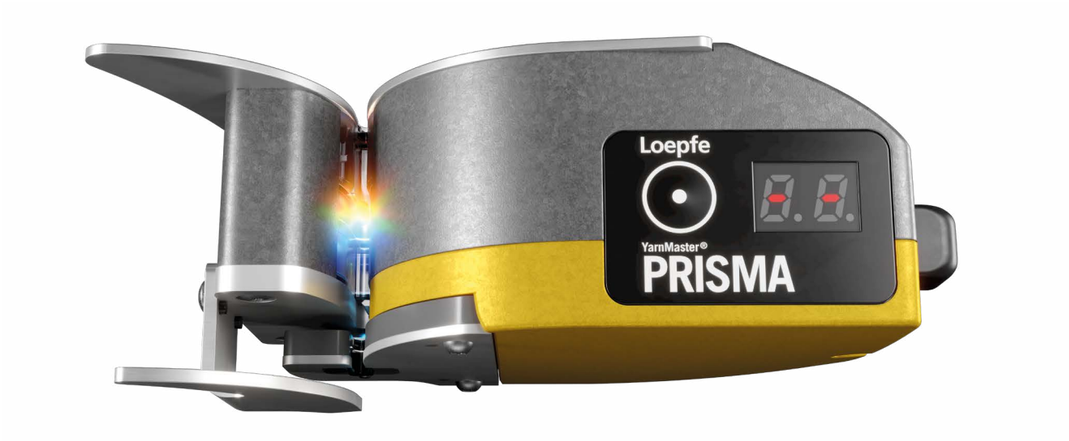
Online Laboratory for 100% Production Monitoring

LabPack extends yarn quality control beyond periodic laboratory sampling to continuous online monitoring. Instead of evaluating only selected samples, LabPack measures 100% of the produced yarn directly during winding and provides real-time quality data.

Powered by the latest YarnMaster® PRISMA technology, LabPack continuously monitors key yarn characteristics such as CVd, Hairiness and Imperfections, enabling faster process optimisation, improved quality consistency and reliable identification of off-standard bobbins.

PRISMA LabPack offers:

- Consistent yarn quality thanks to online monitoring of every millimetre of yarn
- Immediate production optimisation with real-time quality insights
- Reliable identification of off-standard bobbins before they enter subsequent processing steps
- Greater transparency of raw materials and machine performance across the spinning process
- Reduced laboratory workload through fewer manual sampling and testing activities
- Early indication of ring traveller and machine component wear through changes in yarn quality trends



LabPack Features and Quality Values

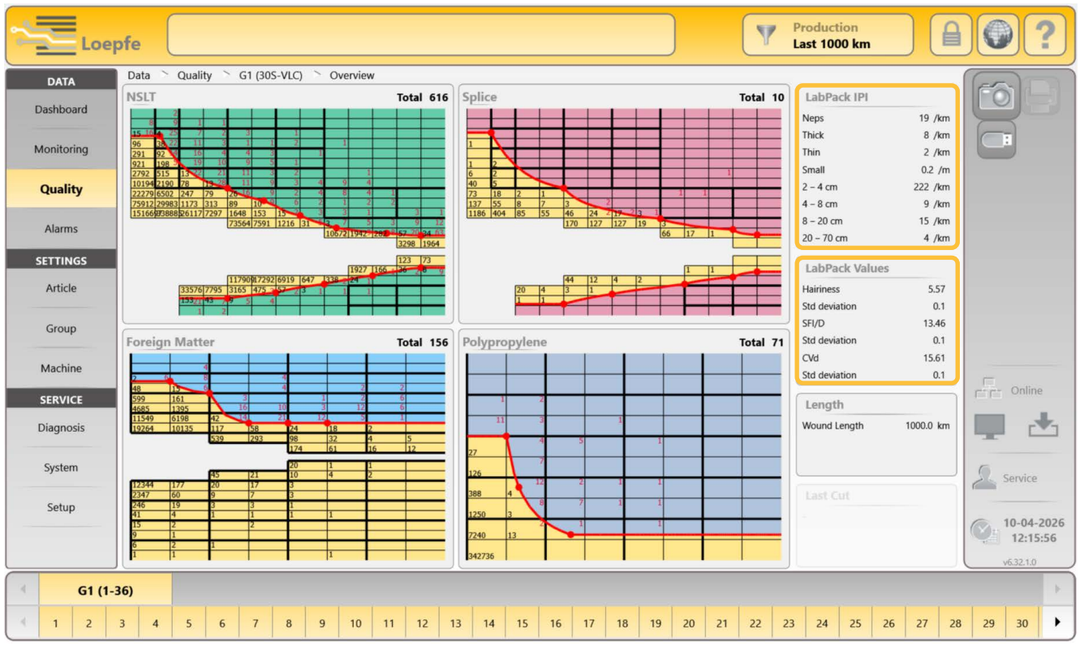
PRISMA LabPack combines dedicated unevenness and hairiness clearing and monitoring functionality with proven quality values.

LabPack clearing & monitoring:

- VCV: Variable Coefficient of Variation
- Hairiness

LabPack quality values:

- CVd: Coefficient of Variation of diameter
- Hairiness
- IPI: Imperfections



Quality overview

LabPack Clearing & Monitoring

VCV: Early Detection of Process Variations

The VCV (Variable Coefficient of Variation) function enables reliable detection of abnormal diameter variations caused by drafting errors, top or bottom roller eccentricities, machine disturbances, or localised process irregularities. The real-time detection of disturbances, allows spinning mills to quickly pinpoint process issues and maintain consistent yarn quality throughout production.

Advantages for yarn production

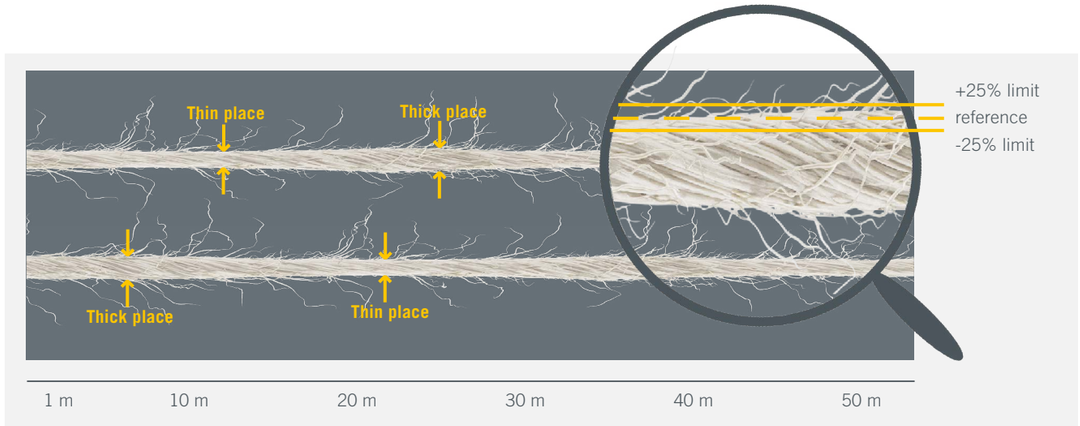
- Early detection of drafting or roller problems
- Identification of sporadic defects
- Improved yarn quality through targeted removal of defective yarn sections
- Efficient process monitoring thanks to adjustable sensitivity in measurement
- Accurate detection of missing slub and irregular slub pattern in slub yarn

Flexible Inspection Lengths for Better Process Visibility

Unlike conventional laboratory testing, where CV values are typically calculated over fixed lengths of 400 m or 1000 m, VCV allows inspection lengths to be tailored to the process and application.

- Cuts: 1 m to 50 m
- Events: 10 m to 1000 m

This flexibility enables the detection of short-duration process disturbances that may be averaged out in laboratory results. As a result, spinning mills gain earlier visibility of developing quality issues and can take corrective action immediately.



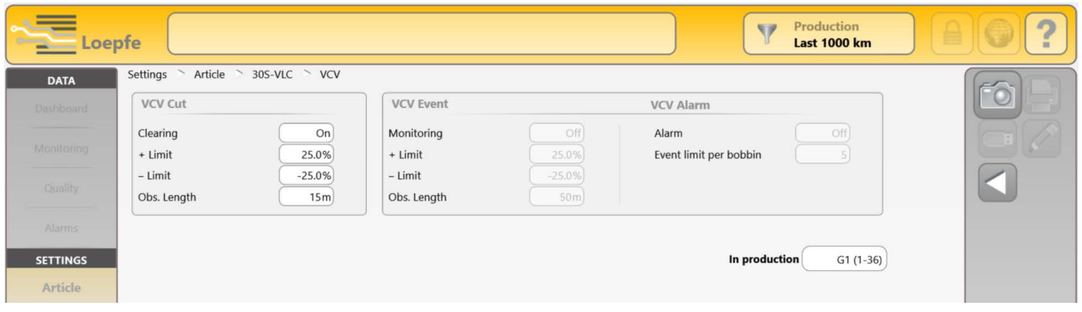
Measurement method of VCV

VCV Cuts

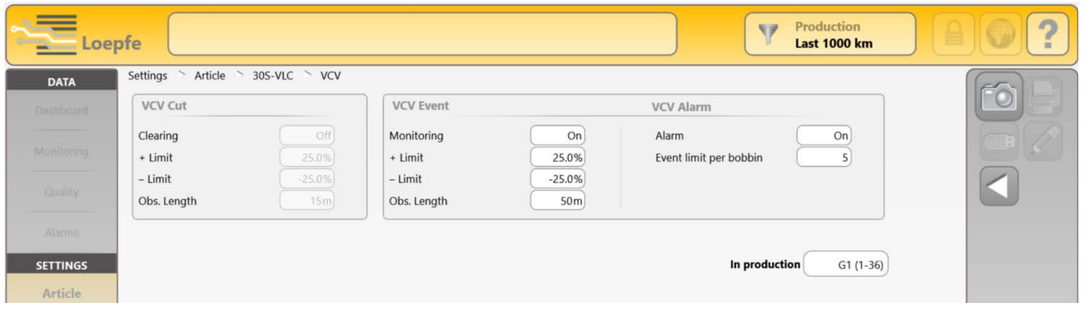
Based on the yarn data collected by the yarn clearer, a CV value (Coefficient of Variation) is continuously calculated. This value is compared in real time with a reference for the respective yarn group (VCV group reference). As soon as the set tolerance limit is exceeded or fallen below, an automatic cut is triggered. The winding unit will remove the set observation length.

VCV Events / Alarms

Rather than triggering an immediate cut, VCV events can be recorded when the defined threshold is exceeded. The system monitors VCV events per bobbin over inspection lengths ranging from 10 to 1000 metres, with a configurable event limit for each bobbin. In addition the winding position can be alarmed and stopped, allowing the particular bobbin to be removed. The key advantage is that only deviations likely to affect downstream processes are counted.



Cut setting enabled



Event and alarm setting enabled

Hairiness: Monitoring Yarn Surface Quality

Depending on the spinning process and end application, a certain degree of yarn hairiness is desirable and may even be necessary. Excessive or uneven hairiness can lead to significant quality and processing problems. By continuously measuring and controlling hairiness, spinning mills secure an essential part of quality assurance in yarn production.

Advantages for yarn production

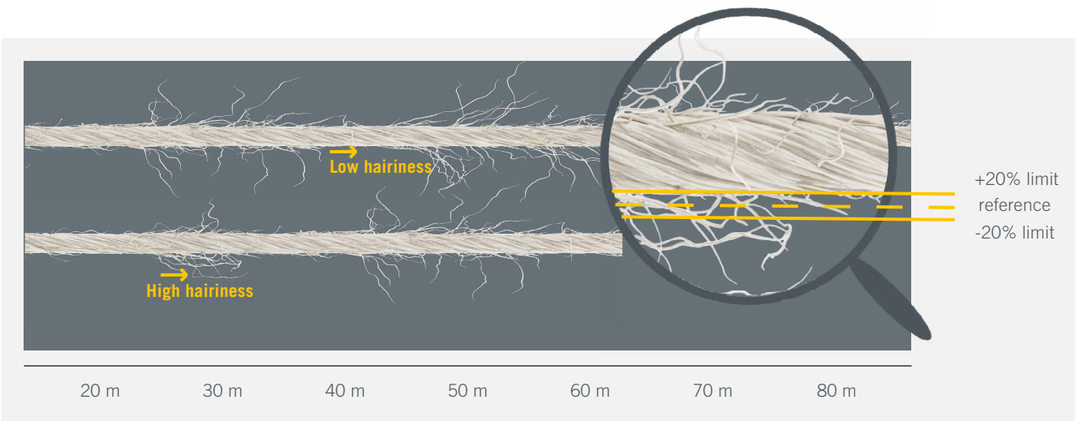
- Maintaining a uniform yarn surface
- Improved weaving and knitting performance by reducing disruptions caused by yarn entanglement and abrasion
- Enhanced operational reliability, even on high-speed textile machines
- More consistent dyeing results
- Reduced pilling tendency, contributing to higher-quality finished products
- Improved fabric appearance and feel

Flexible inspection lengths for targeted Hairiness Monitoring

By continuously monitoring and controlling hairiness, a consistently uniform yarn surface is ensured. Compared with conventional laboratory testing, a key advantage is the ability to select inspection lengths that match the process requirements.

- Cuts: 20 m to 80 m
- Events: 20 m to 1000 m

Hairiness control directly contributes to stable production, reduced waste, and increased customer satisfaction across the textile value chain.



Measurement method of hairiness

Hairiness Response Functions

In the settings overview, hairiness can be specifically selected and monitored. Different response options allow quality requirements to be adapted to individual customer and application needs. Hairiness cut, hairiness event and hairiness alarm ensure reliable quality control throughout the entire yarn production process. The H Group mean value is shown on the settings page, along with the detection range for hairiness, which is defined based on the configured limit.



Settings overview



Reference Yarn



Hairiness rejected yarn

LabPack Quality Values

CVd:

The coefficient of variation (CV) is one of the most widely used indicators for assessing the evenness of yarns and is displayed in the quality overview.

Unlike offline laboratory measurements based on selected samples, CVd is calculated from continuously collected production data, providing real-time insight into yarn evenness and earlier visibility of developing process trends.

Measurement and interpretation

The uniformity of yarn diameter variations is determined using optical measurement technology.

- Low variation means a low CVd value. In this case, all packages in a batch have similar evenness, indicating uniform and homogeneous production.
- High diameter variation results in a higher CVd value. Quality variation between packages increases, indicating reduced process stability and a higher risk of downstream quality issues.

Hairiness:

Hairiness describes the fibres protruding from the yarn and is measured over a length of 1cm. The hairiness value provides a precise indication of the yarn's surface structure and has a direct influence on weaving, knitting, dyeing, pilling behaviour, and the appearance of the finished fabric.

By continuously monitoring hairiness online, LabPack helps spinning mills maintain a uniform yarn surface and consistently high yarn quality.

Measurement method and interpretation

The measurement is performed using special infrared signals that evaluate all protruding fibres within the set observation length by using a dedicated algorithm.

The obtained values enable:

- Clear comparability between yarn batches
- Early detection of deviations in the spinning process
- Targeted process optimisation, for example, by adjusting the twist or spinning parameters

IPI:

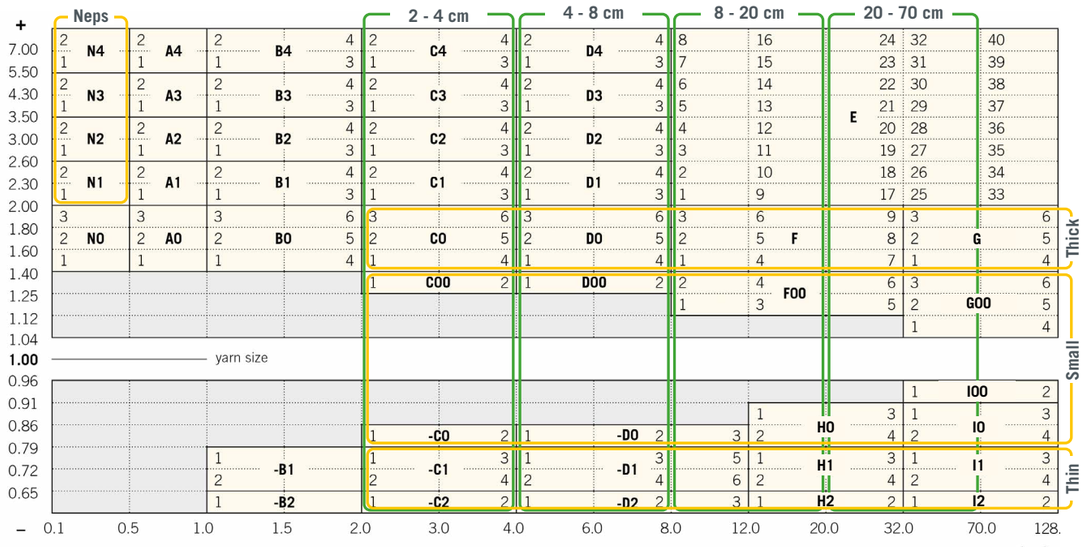
PRISMA continuously measures and classifies yarn imperfections, providing a complete picture of yarn quality during production. In addition to the detection of neps, thick places, and thin places, PRISMA also identifies longer diameter deviations, such as periodic faults and extended thick or thin places. This allows spinning mills to detect both isolated defects and systematic process problems at an early stage.

Measurement method and interpretation

The system provides the following key values per 1000 meters of yarn:

- Neps
- Thick places
- Thin places
- Small (Irregularities per 1 metre)
- Length 2 - 4cm
- Length 4 - 8cm
- Length 8 - 20cm
- Length 20 - 70cm

These measurements offer direct insight into the uniformity and quality of the yarn.



NSLT Matrix - Imperfection ranges

YarnMaster® PRISMA

Clever yarn clearing

Clever yarn clearing for winding combines superior yarn clearing performance with great value. PRISMA is the solution for spinning mills that need high quality yarns at maximum machine efficiency. As the only yarn clearer on the market featuring comprehensive four-sensor measurement methods, PRISMA stands out as the most advanced yarn monitoring system for basic, foreign matter, and polypropylene clearing. Reduce costs, enhance efficiency and improve yarn quality with PRISMA, the clever choice for modern spinning mills.

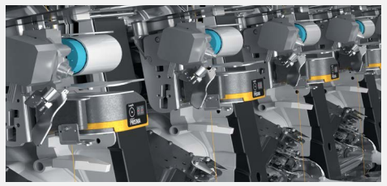
PRISMA is a dynamic system that is evolving to market needs. All functionalities are designed with the needs of spinners in mind, contributing to a significant increase in yarn quality, reduction in yarn waste, and boosting winding machine and production efficiency.

In addition to its technological superiority, PRISMA offers the cleverest and most effortless yarn clearing experience on the market. Time and resources are saved while efficiency and quality remain stable at the highest level. PRISMA's clever yarn clearing is the ultimate solution for spinning mills, providing support and security, optimum user experience, and time and cost savings.

Only with PRISMA

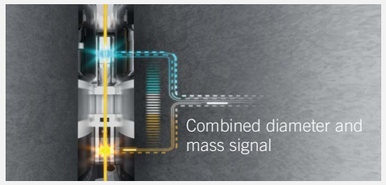
Unique four sensor technology

Superior clearing results under all circumstances with four dedicated sensors



Real dual measurement in all models

Best fault detection with seamless optical and capacitive measuring signals



RGB all-color foreign matter detection

Unmatched contamination control with a 360° true colour vision



Unique four sensor technology

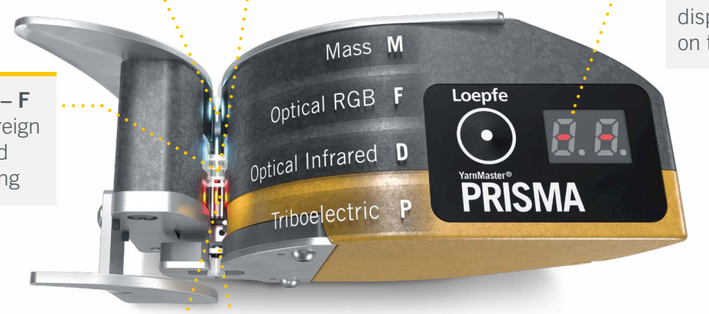
PRISMA combines unique four sensor technology with smart software and the Millmaster TOP data management system to deliver a powerful performance in yarn quality control and process optimisation. Only PRISMA offers four dedicated sensors for four different clearing tasks, providing the most accurate fault detection and clearing possibilities. This precision eliminates unjustified cuts, significantly improving efficiency and yarn quality.

Mass sensor – M
Efficient detection of defective core yarns and wrong yarn counts

360° all-round view
Clever calculation of all signals and their reflections for perfect yarn monitoring

LED display
Fault information displayed directly on the sensing head

Optical RGB sensor – F
Unique all-colour foreign matter detection and clever organic filtering



Optical infrared sensor – D
Most accurate detection of basic yarn faults like NSLT and hairiness

Triboelectric sensor – P
Secure detection of white and transparent polypropylene

Loepfe Brothers Ltd.

The Pioneers

Since its establishment in 1955, Loepfe has been a pacesetter in innovation for yarn quality control. The company researches, develops, and manufactures clever sensor systems in Switzerland to meet the needs of spinning mills worldwide. Loepfe has long excelled in sensor technologies for yarn and filament monitoring around the world.

1955
First electronic weft monitoring in the textile industry

1963
First Loepfe yarn clearer

1991
Pioneer in the detection of foreign matter

1999
Pioneer in the detection of hairiness

2003
Pioneer in the detection of polypropylene

2019
Pioneer in simultaneous dual measurement and RGB technology for all-colour foreign matter detection

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Loepfe is part of the Vandewiele Group. Providing cutting-edge technology and effective solutions for the textile industry. Spinning mills around the world rely on our innovation at the highest level. Quality made in Switzerland.

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Disclaimer: The YarnMaster® PRISMA system helps to improve yarn quality, the ultimate responsibility for the spinning quality lies with the spinner.
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