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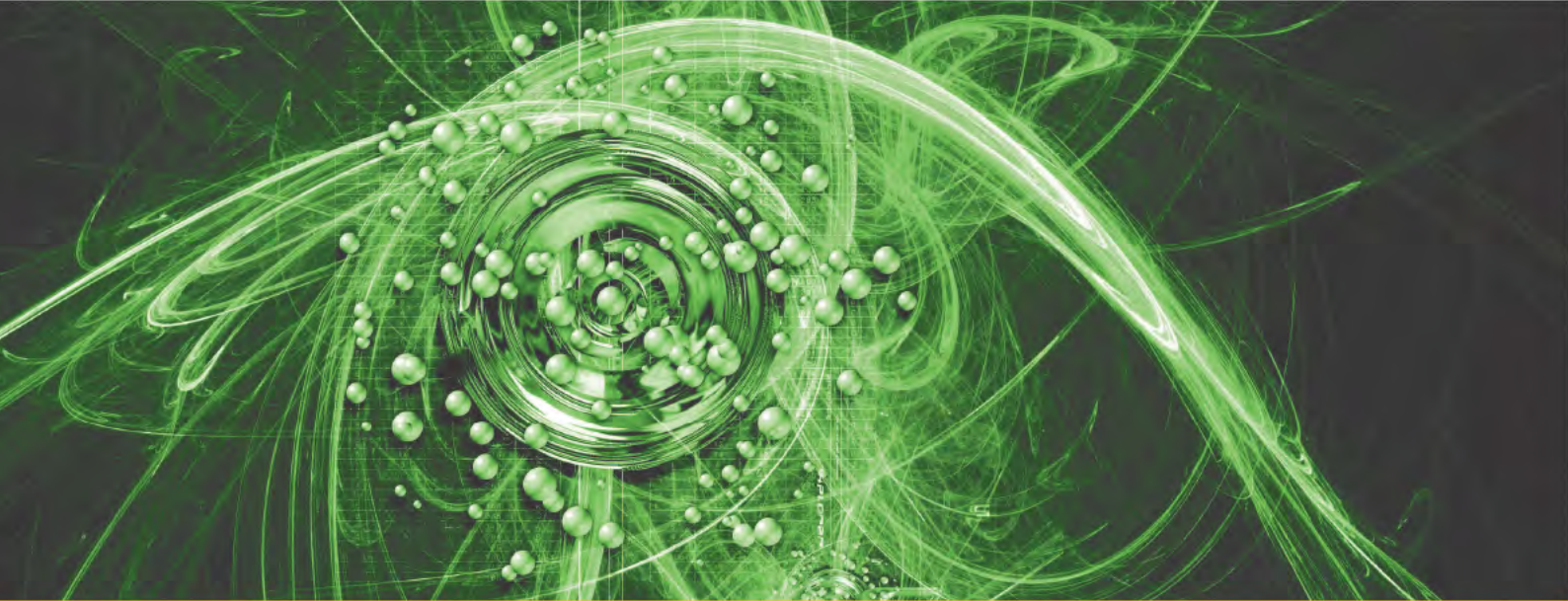


# THE AUTHENTIC P-SENSOR

TRIBOELECTRIC YARN CLEARING



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## THE PROBLEM

**YARNMASTER®**  
DIGITAL ONLINE QUALITY CONTROL

**Yarn contamination by white or transparent polypropylene causes production and quality loss.**

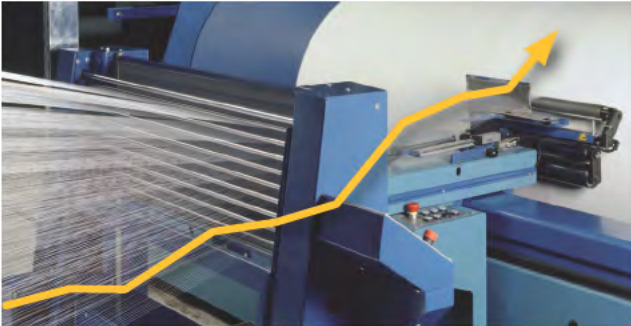
The contamination of cotton with synthetic foreign matter mainly results from contaminated cotton fields and packaging remnants. During processing in the spinning preparatory mill they become smaller and are evenly spread during folding. Foreign matter elimination when opening the bale can reduce the cut numbers in the winding process by only 10 percent. Experience shows that every fifth machine stop during sectional warping and beam warping is due to polypropylene contamination. Yarn strength is reduced because there are fewer fibers in the cross-section. In addition, hooking

can cause machine standstills. The later the standstills occur in the process, the higher the costs incur.

White polypropylene becomes visible only after dyeing. Clearing improves the yarn standard considerably and prevents costly complaints concerning the dyed end product.

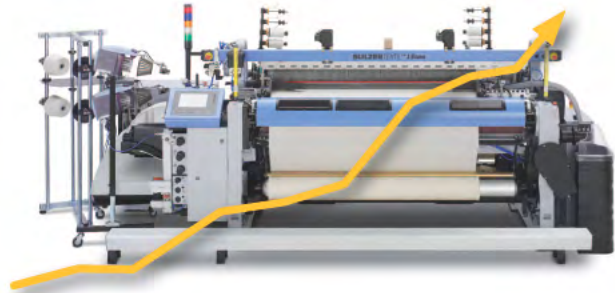


## EFFICIENCY %



*Prevention of standstills during sectional warping and sizing reduces costs and increases efficiency*

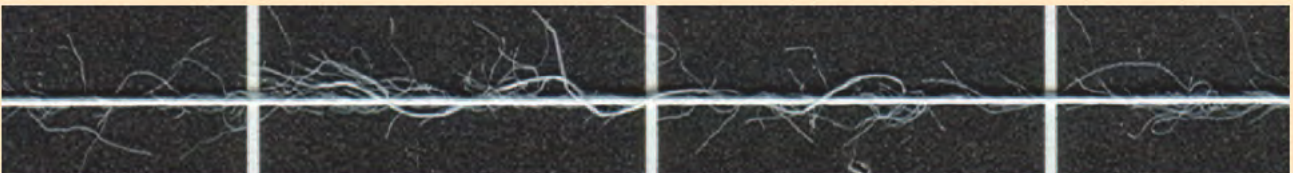
## EFFICIENCY %



*Prevention of standstills increases efficiency and economic efficiency*

**„Good yarn quality is the result of yarn clearing that leaves nothing to chance. Seeing more is decisive“**

## Yarn with polypropylene fiber



## Visible fault in knitting after dyeing





# THE SOLUTION

## **YARNMASTER®** DIGITAL ONLINE QUALITY CONTROL

### **Polypropylene Detection**

Polypropylene (PP) and other synthetic foreign matter that is transparent and identical in color with cotton/wool can hardly be detected with conventional, optical foreign fiber clearing.

Loepfe has developed the P-Sensor to overcome these problems. This sensor detects synthetic foreign fibers:

- Irrespective of the color of the yarn and the foreign matter, for example, white and transparent polypropylene in raw-white yarn
- Even the finest foreign fibers
- With highest reliability thanks to many years of practical experience

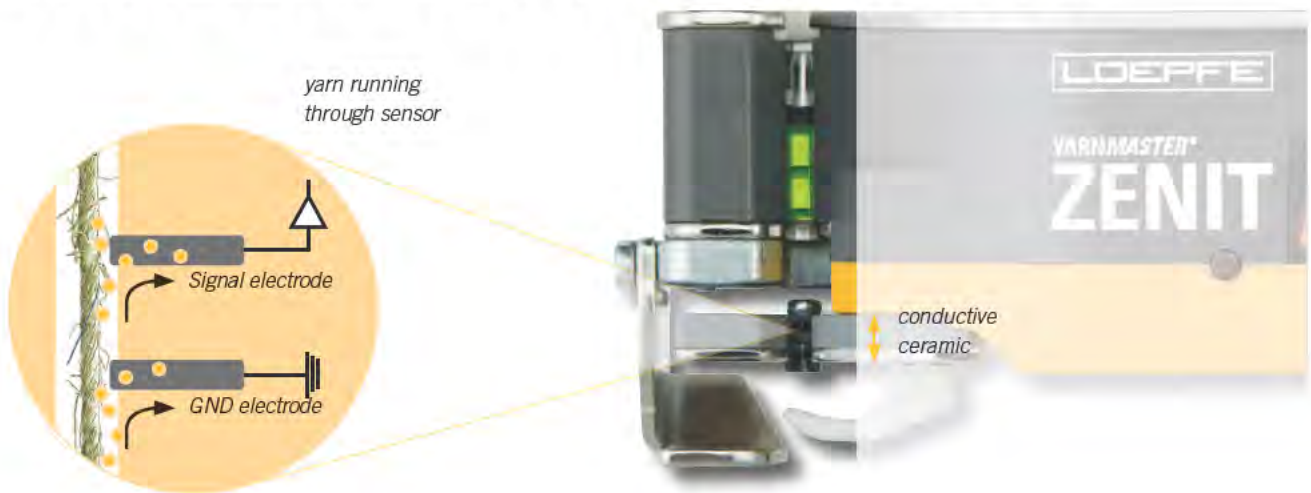
### **Operating Principle**

While the yarn passes the P-Sensor, the fibers exchange electrons with the sensor. This effect is referred to as „triboelectric effect“. It is continuously measured with the latest state-of-the-art electronics. When a synthetic fiber passes the electrode of the sensor, it is detected because of the triboelectric voltage difference. The YarnMaster ZENIT FP yarn clearer thus detects synthetic foreign matter, such as polypropylene, polyethylene, polyamide (nylon) etc.

**„Tribo-electric yarn clearing technology –  
the one and only approved solution!“**



# TRIBOELECTRIC MEASURING PRINCIPLE



## Application

- **Material:**  
cotton and cotton blends (depending on the material and the blending ratio)
- **Yarn Count:**  
Nm 7 – 540, Nec 4 – 320
- **Winding Speed:**  
up to 2000 m/min
- **Wet Splicing:**  
possible

## Triboelectric Series

Dry Human Hands, Skin	acquires a more positive charge
Leather	
Rabbit Fur	
Glass	
Human Hair	
<b>Nylon (Polyamid)</b>	
<b>Wool</b>	
Fur	
Lead	
<b>Silk</b>	
Aluminium	+
Paper	
<b>Cotton</b>	-
Steel	
Wood	
Amber	
Hard Rubber	
Nickel, Copper	
Brass, Silver	
Gold, Platinum	
<b>Polyester</b>	
Saran Wrap	
Polyacrylic	
Polyurethane	
Polyethylene (scotch tape)	
<b>Polypropylene</b>	

Even white PP faults in blended cotton yarn will be detected by the tribo-electric sensor

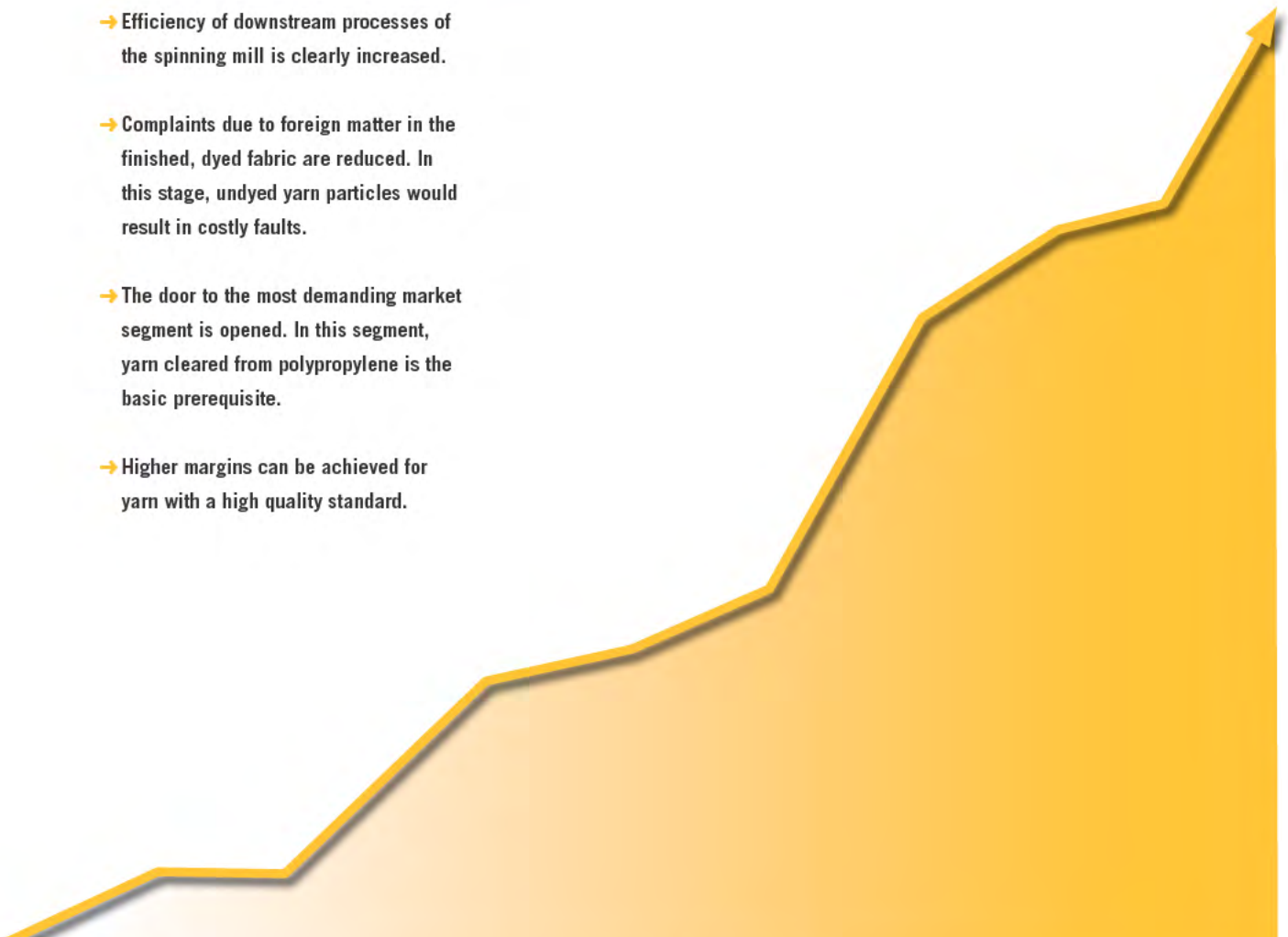


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## YOUR ADVANTAGES

- Efficiency of downstream processes of the spinning mill is clearly increased.
- Complaints due to foreign matter in the finished, dyed fabric are reduced. In this stage, undyed yarn particles would result in costly faults.
- The door to the most demanding market segment is opened. In this segment, yarn cleared from polypropylene is the basic prerequisite.
- Higher margins can be achieved for yarn with a high quality standard.







**Loepfe**  
quality-tested

### Significance as quality standard

Analog to foreign matter detection in the nineties, yarn cleared from polypropylene will prevail as prerequisite for a high qua-

lity standard. An increasing number of yarn buyers specifically demand yarn cleared from polypropylene from their suppliers.

## CONCLUSION

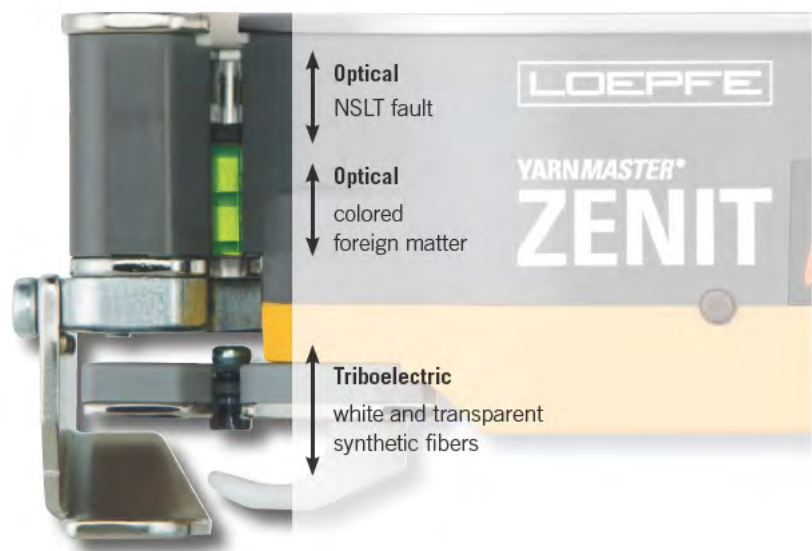
Loepfe provides optimum solutions with the optical and triboelectric measuring processes. Using a measuring system with limited capability and low reliability is unnecessary and not economical.

### Optical

Detection and clearing of conventional yarn faults as well as colored foreign matters. The yarn and the textile surface meet the quality of the human eye.

### Triboelectric

Detection and clearing of coarse and finest synthetic foreign matter independent of the color. Undyed, disturbing fibers are thus eliminated at an early stage.



**The only yarn clearer with 3 specifically dedicated sensors.**

**YarnMaster – Built to see more!**



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Loepfe Brothers Ltd.  
8623 Wetzikon/Switzerland  
Phone +41 43 488 11 11  
Fax +41 43 488 11 00  
sales@loepfe.com  
www.loepfe.com