



REDWAVE TEX
TEXTILE SORTING
Precise – Efficient – Scalable

RECYCLING



High-Precision
Sorting Technology

REDWAVE TEX

Intelligent Sorting for the Circular Textile Economy

REDWAVE TEX represents state-of-the-art, sensor-based sorting technology for modern textile processing. The systems enable reliable identification and classification of a wide variety of textile materials based on defined quality and material criteria. This creates the foundation for efficient recycling processes and the production of high-quality secondary raw materials.

By combining optical sensor technology, intelligent data analysis, and high process stability, REDWAVE TEX provides an industrial-grade solution for the increasing demands of the textile circular economy – economically viable, scalable, and operationally reliable.



TASK I:

Sorting of Textiles for Reuse
(Garments in Original Form)

REDWAVE TEX enables the precise detection and sorting of complete garments for direct reuse. Through automated classification based on defined criteria such as material, colour, condition, or product category, wearable textiles are efficiently identified and specifically directed into reuse streams.

TASK II:

Sorting of Shredded Textiles for
Industrial Recycling

In fibre and material recovery, REDWAVE TEX also sorts shredded textile fractions for downstream industrial recycling processes. This ensures that defined material streams are prepared for mechanical or chemical recycling and optimally conditioned for further processing.

REDWAVE TEX – Key Benefits

- » **Precision:** High-accuracy detection and sorting of textiles based on predefined material and quality parameters, ensuring consistently high sorting quality
- » **Efficiency:** High throughput enables the processing of large textile volumes in short timeframes, significantly increasing overall productivity in industrial recycling
- » **Customisation:** Sorting parameters can be flexibly adapted to specific industry requirements – from material types and colours to complex pattern and product classifications
- » **Reduced Labour Effort:** Automated sorting significantly reduces the need for manual processes, resulting in sustainably lower operating costs
- » **Flexibility:** Systems can be quickly adapted to changing market demands and material streams, supporting dynamic recycling and production environments
- » **Data-Driven Process Optimisation:** Integrated analytics provide valuable insights into material flows and sorting quality, enabling continuous process optimisation and informed decision-making to enhance overall performance





REDWAVE SORTING MACHINES

Technologies for the textile industry

What is REDWAVE TEX used for?

- » Sorting for reuse
- » Sorting for recycling
- » Inline analysis systems for real-time determination of material composition
- » Supporting analysis systems for manual sorting

What materials can the system sort?

- From new textiles to used clothing and production waste, REDWAVE TEX is versatile:
- » Used clothing collection
 - » Production waste
 - » Returns and unsold goods
 - » Hospital clothing
 - » Industrial laundry
 - » Shoes, etc.



REDWAVE TEX SORTING TECHNOLOGIES

Fully automated sensor-based sorting systems for whole garments, sorting them into a wide range of different categories.

Technical specifications:

- » Outputs: more than 4, typically 15 to 25
- » Throughput: up to 6.300 pcs./hour
- » Ejection: by compressed air across the material flow
- » Input material size: 100 to 1000 mm
- » Belt width: 800 to 1200 mm
- » Multisensor system: NIR, colour camera, and metal detector bar



REDWAVE TEX 2i

Variant 1

Fully automatic sensor-based sorting machine for sorting shredded textiles and whole garments into a small number of categories.

Technical specifications:

- » Outputs: 2 to 3 or 4 to 6 partial streams
- » Throughput: up to 16 t/h
- » Ejection: by compressed air above and below the material flow
- » Input material size: 40 to 500 mm
- » Belt width: 1400 mm, 2000 mm, 2800 mm
- » Multisensor system: NIR, colour camera, and metal detector bar

Variant 2

Fully automatic sensor-based sorting machine for sorting small parts (e.g., shredded shoes sorted into categories such as rubber, various types of plastics, foam materials, metal parts, etc.).

Technical specifications:

- » Outputs: 2 to 4 partial streams
- » Throughput: up to 4 t/h
- » Ejection: via compressed air above the material flow
- » Input material size: 3 to 40 mm

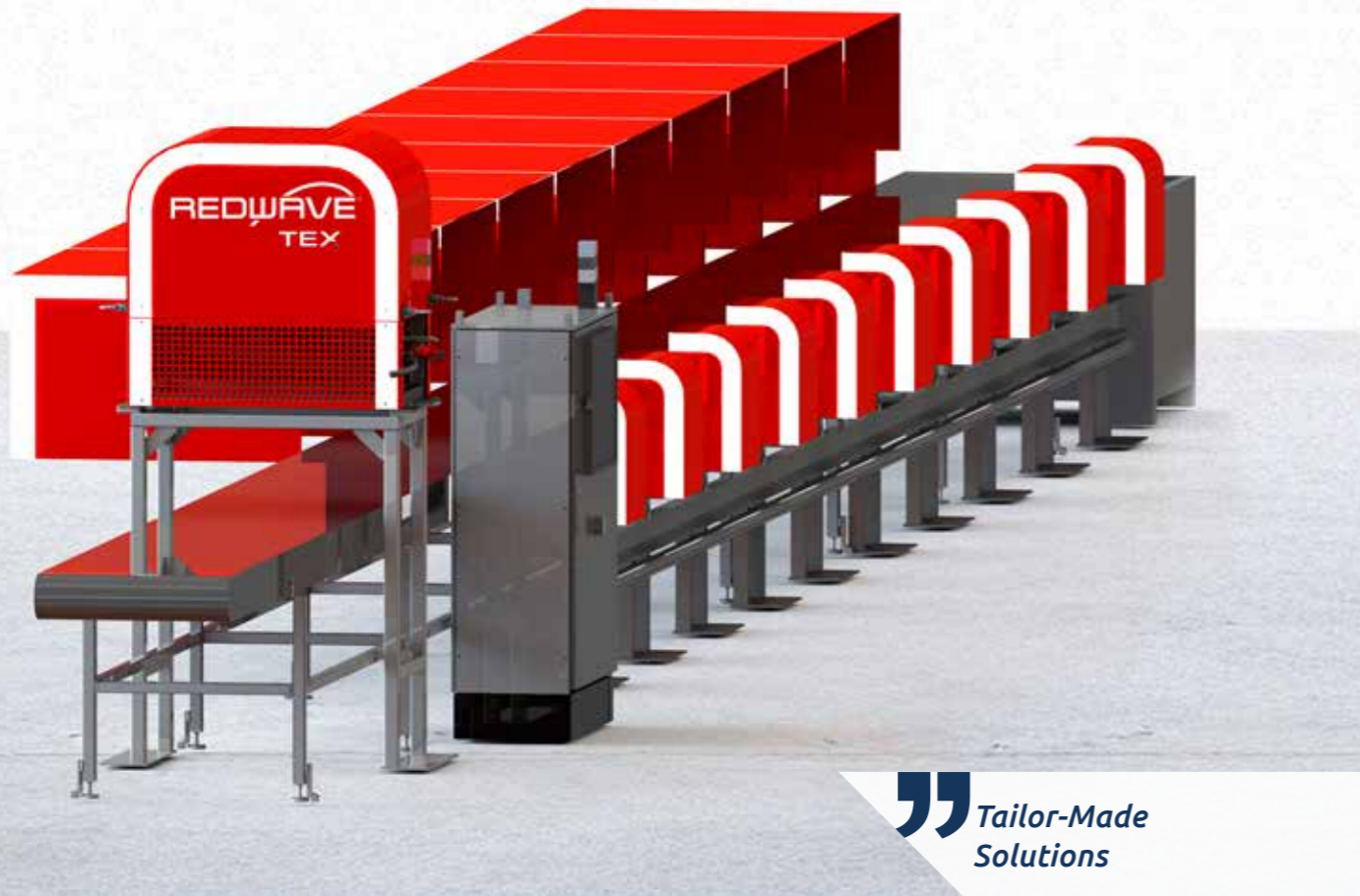
REDWAVE TEX Qi

Fully automatic analyser for determining the composition of the material stream, for quality monitoring or sorting process control.

Highlights

- » Sorting precision
- » Efficiency in processing large quantities for textiles
- » Adaptability to customer requirements
- » Labour savings through automation
- » Flexibility in adjusting sorting criteria





“Tailor-Made Solutions”

PLANT ENGINEERING SOLUTIONS

Integrated Concepts for a Circular Textile Industry

REDWAVE TEX – enabling sustainable textile recycling with measurable impact on environment, economy, and society.

The textile circular economy places new demands on the collection, sorting, and processing of post-consumer textiles and production waste. Modern plant solutions enable textile streams to be efficiently captured, separated, and specifically prepared for reuse or recycling processes. This reduces waste, conserves resources, and creates economically viable secondary materials.

THE TEXTILE CIRCULAR PROCESS

Textile recycling is based on a closed-loop system designed to keep materials in circulation for as long as possible:



At the core of this system are high-performance sorting and processing plants that differentiate textile streams by material, quality, and recovery pathway.

INDUSTRIES & MATERIAL SOURCES

Fashion & Retail

Fashion houses, brands, and retailers generate large volumes of textile surplus due to overproduction, unsold goods, and returns. At the same time, pressure is increasing to integrate sustainable take-back and recycling solutions into existing value chains and to minimise textile waste.

Hospitality & Healthcare

Hotels, hospitals, and similar institutions generate substantial quantities of textiles such as bed linen, uniforms, and care-related materials. Efficient sorting and recycling systems enable sustainable processing of these streams while reducing disposal effort and costs.

Textile Manufacturers

Production processes continuously generate material residues such as offcuts and fabric waste. These side streams offer significant potential for reintegration into recycling processes and the production of new fibres or materials. Integrated recycling solutions help reduce disposal costs and improve production sustainability.

Garment Manufacturers

Clothing manufacturers are increasingly subject to regulatory and societal pressure to implement sustainable practices. Structured recycling processes enable them to improve their environmental footprint and take responsibility across the entire product lifecycle.

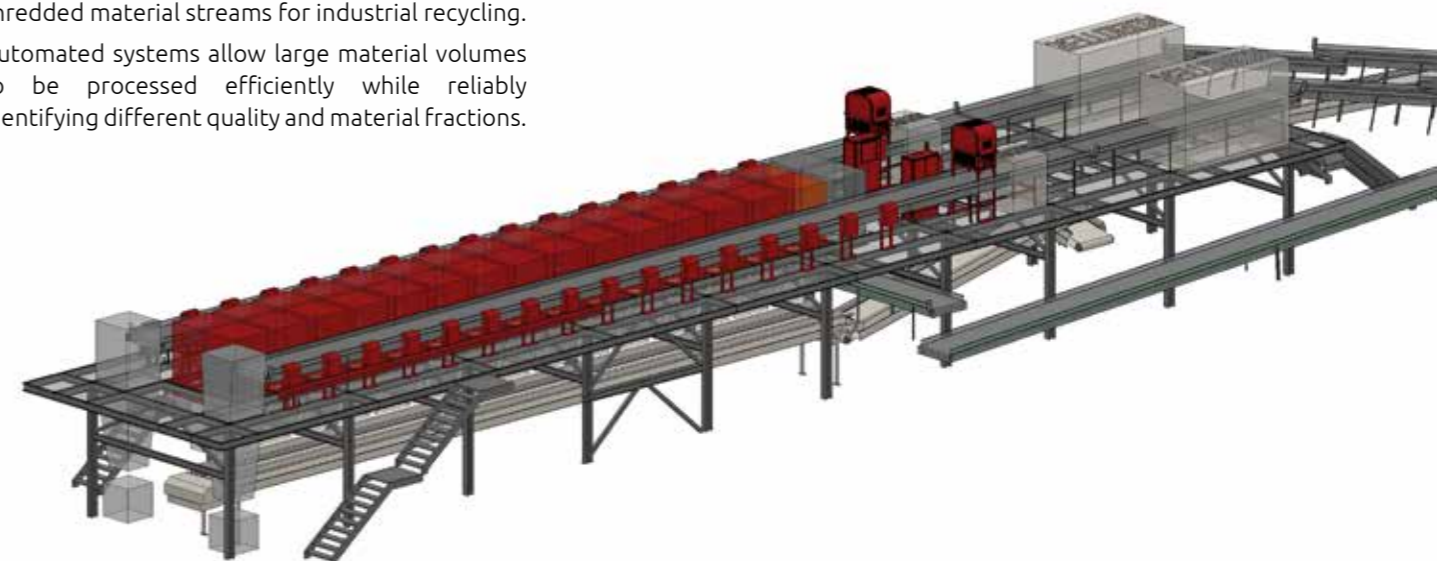
PLANT ENGINEERING SOLUTIONS

for the Textile Circular Economy

Modern sorting and recycling plants form the technological backbone of an efficient textile circular economy.

They enable the precise separation of textiles for reuse, as well as the targeted processing of shredded material streams for industrial recycling. Automated systems allow large material volumes to be processed efficiently while reliably identifying different quality and material fractions.

This increases recovery rates, reduces manual effort, and enhances the economic performance of the entire process chain.



BT-Systems is an international mechanical engineering and automation company and offers system integrations for innovative, cost-efficient industrial solutions. From planning and commissioning through to service, we operate worldwide in the following areas:

AUTOMATION

CONVEYOR

INTRALOGISTICS

QUALITY

RECYCLING