![Reifenhäuser logo]

Reifenhäuser

REICOFIL

The Extrusioneers

Reifenhäuser Reicofil

Digital Product Portfolio

Index

Digitalization at Reicofil

We keep your production safe

Connecting machines does not affect your production!

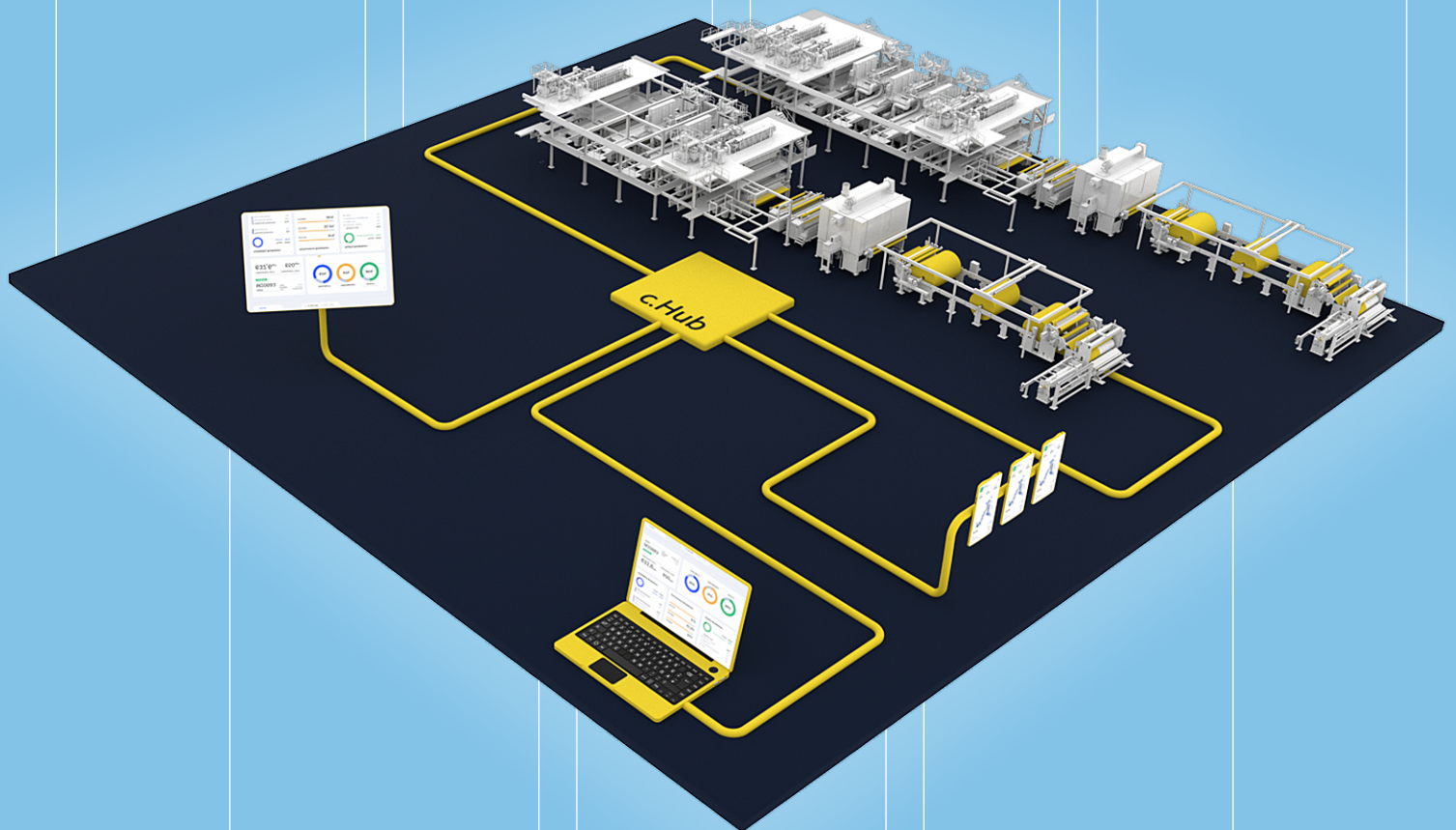## We can connect existing lines and peripheral equipment

from multiple types and vendors

We deliver on your premises

Your data is secure and under your control

We tidy up the data chaos – and provide transparency

with extrusion- and nonwoven specific apps

We push the data to your laptops and mobile devices

You are always LIVE informed within your manufacturing network
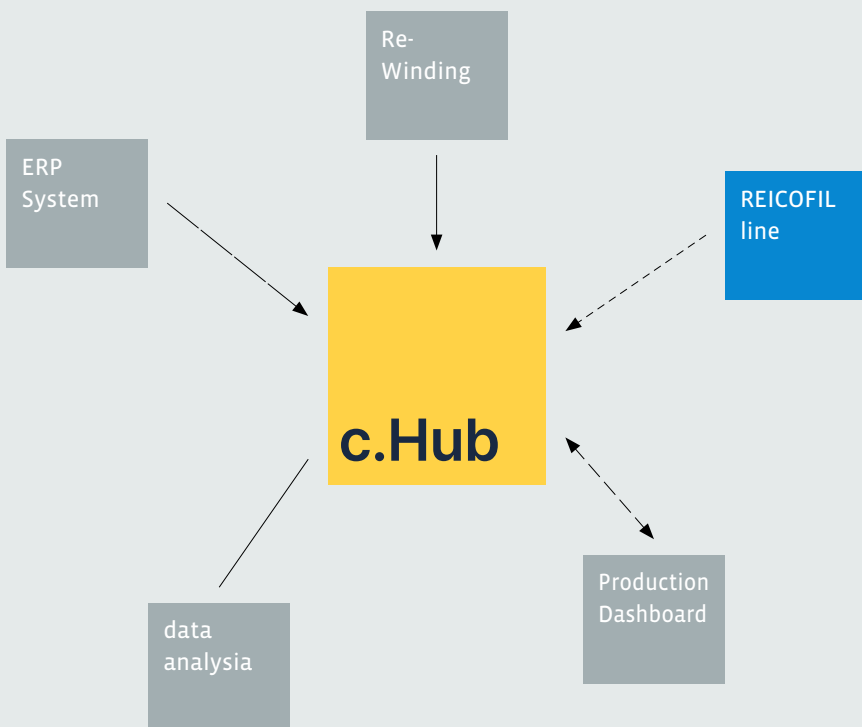
We integrate with existing systems like ERP/MES

to revolutionize your production processes

We understand the nonwoven production

and can customize the solution to your needs

c.Hub Platform

Gain sustainable insights and process transparency by connecting all your lines and machines. Tailored for the nonwoven and extrusion industry to easily analyze, visualize and optimize your production.

The c.Hub Middleware

- is the 'single point of truth' for all your data. No more data silos!

- is a powerful platform tailored to the nonwovens industry

- helps to connect and harmonize data between different assets, machine types and applications

- enables you to use your production data for further data-analysis

Re-Winding

ERP System

REICOFIL line

c.Hub

data analysia

Production Dashboard

ExtrusionOS

ExtrusionOS

The ExtrusionOS Suite and its features

Our digital products help you to solve the most common challenges in nonwovens production. The ExtrusionOS Suite has been specially tailored to your needs and offers a wide range of different features. These enable you to sustainably increase the quality, performance and availability of your production. The goal is to provide you with a new dimension of transparency on your data, to support you in troubleshooting and to make your data secure and easy to track. All features described in this flyer except the Pitstop App as well as the Digital Assistant are accessible via the ExtrusionOS user interface.

You can choose from four software bundles

Core & c.Hub Middleware

Core platform that allows you to digitally connect your shopfloor, as well as monitor, manage, store, and analyze your process data with intuitive and user-friendly applications and dashboards. Also available: Out of the box connectors for the major industry protocols and an easy integration of Reifenhäuser machinery via "plug & play". This bundle is a prerequisite for all other bundles.

Machine Health

Supports you to detect, store and historically trace the condition of all connected assets and to optimally set them up based on the gained insights. Optimize your processes along the entire production chain.

Production Compliance

Data-based monitoring and documentation of production processes help to prove compliance with key thresholds. Data is captured related to orders and rolls in real-time and visible for all relevant stakeholders. This enables you to act fast and significantly reduce errors and customer complaints.

Defect Analytics

Gain transparency on defects that occurred – for each roll produced. Monitor all your defect specific KPIs at all times. Trace and analyze your defect occurrence efficiently and reduce scrap.

ExtrusionOS bundles

Features	Core & c.Hub Middleware	Machine Health	Production Compliance	Defect Analytics
Production Overview Key parameters of all your assets	✅	✅ combined with equipment-specific thresholds	✅ combined with product-specific thresholds	✅ combined with defect-specific thresholds
Machine Monitor Act / set values of all connected machines	✅	✅ combined with equipment-specific thresholds	✅ combined with product-specific thresholds	✅ combined with defect-specific thresholds
Trend Builder Freely configurable trends	✅	✅ combined with equipment-specific thresholds	✅ combined with product-specific thresholds	✅ combined with defect-specific thresholds
Benchmarking Tool Creation of data snapshots and benchmarking	✅	✅ combined with equipment-specific thresholds	✅ combined with product-specific thresholds	–
Equipment Threshold Manager Defining which thresholds apply to which equipment properties	–	✅	–	–
Condition Monitoring Pre-defined dashboards for the specific equipment	–	✅	–	–
Health Notifications configuration of messages when threshold values are exceeded	–	✅	–	–
Order and Roll Data Management Manage your orders and rolls in context with other production data	–	–	✅	✅
Product Management Set product specific thresholds to meet compliance regulations	–	–	✅	–
Compliance Monitoring Dashboard to monitor current production vs. product specific thresholds, predefined	–	–	✅	–
Compliance Reporting Reports if you were within/outside the thresholds of a specific product during production with history of threshold violations	–	–	✅	–
Compliance Notifications Configuration of notifications when thresholds are exceeded, depending on a running product	–	–	✅	–
Defect Analyzer Precise defect tracking and analysis per roll produced. Notifications on detected defects to enable faster actions	–	–	–	✅

The Core bundle is the basic version and a prerequisite for the other ExtrusionOS bundles. In the table you can find an overview of the included features. The features listed in **bold and blue** are now available. The other features are currently in the final stages of development and will be available in early Q3 2022. The products called Digital Assistant and Pitstop App are stand-alone solutions that are not linked to ExtrusionOS. If you have any further questions, please contact your Reicofil representative.

Trend Builder

Configurable Trends & Dashboards

Example Dashboard that allows to monitor key production parameters in one user-friendly interface.
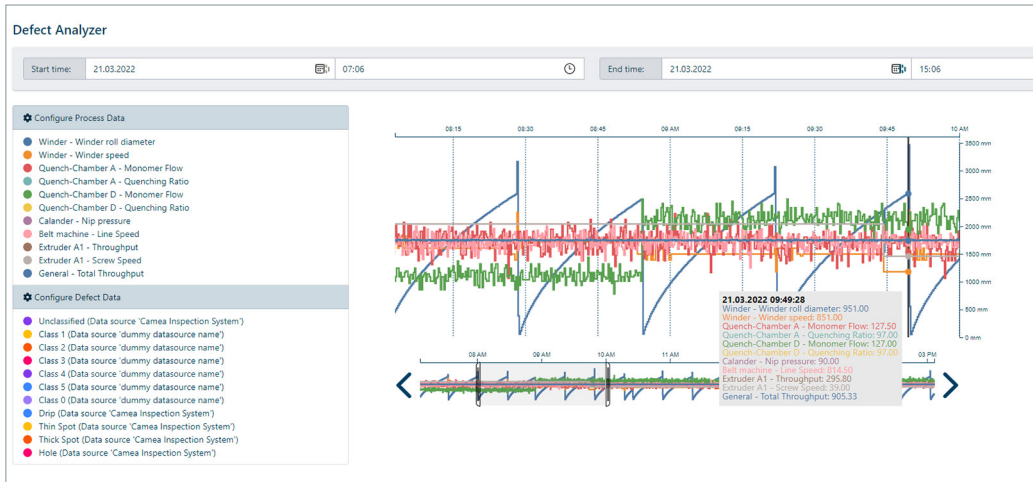
Key Benefits

- Easy usage & access from everywhere within your manufacturing network
- All asset and context data (order, role) in one tool (integration with ERP possible)
- Predefined or use case specific dashboards based on Reicofil know-how
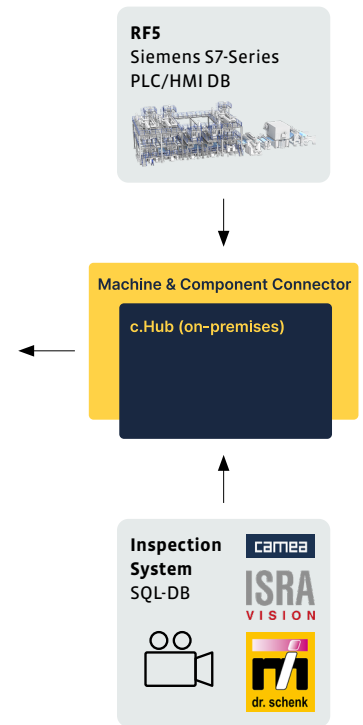- Custom creation of trend charts and convenient troubleshooting

Business Value

- Historical data can be analyzed
- Efficient evaluation of production – live and history
- Basis to calculate and improve OEE in the future

Defect Analyzer

included in
ExtrusionOS
Defect
Analytics

Example of line process properties mapped over inspection data

RF5
Siemens S7-Series
PLC/HMI DB

Machine & Component Connector

c.Hub (on-premises)

**Inspection
System**
SQL-DB

Key Benefits

- All in one place: Easily correlate your production data, defects from inspection systems, and in the future quality data from the laboratory
- Fewer mistakes by reducing manual data analysis & transfer
- Real-time alerts help to react immediately
- Quickly find defects and remove defective rolls

Business Value

- Efficient analysis of defect occurrence
- Reduction of scrap
- Transparency on defects per roll produced
- Increase of plant efficiency and OEE

Compliance Monitoring

Example of monitoring product related thresholds, including notifications when limit values are crossed.

Key Benefits

- **easily define products and assign specific threshold values**
- **enter your target, warning, and limit values** based on all available process parameters
- **monitor the limit values** and **take immediate action** if necessary
- **quickly prove quality compliance,** since all relevant information is clearly stored and easily found

Business Value

- Proof of production for brand owners and your customers
- Minimization of processing when complaints arise
- Minimization of scrap through continuous threshold monitoring
- Individual assignment of quality parameters

Benchmarking Tool

Creating snapshots of a production at a certain point in time to benchmark and to replicate the golden run.

Key Benefits

- **Easily replicate** your 'Golden Run'
- **Recall all process parameters** from any production in the past
- **Visualize and benchmark** different machine states at a glance
- **Filter to determine differences,** both in actual and set parameters
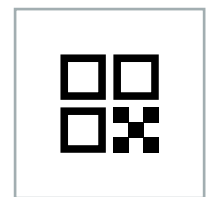- **Speed up** your product development

Business Value

- Efficient product optimization enables competitive advantage over competitors
- Shorter product to market time
- Long-term and secure knowledge management

Stand-alone solutions

Digital Assistant

Scan QR code with your tablet and view equipment documentation.

Key Benefits

- Access to assembly and component information, drawings or maintenance plans
- Create secured photos and videos for documentation purposes
- Share relevant documents directly with other colleagues and do not waste time
- Remote connection of other persons or experienced service technicians of the Reifenhäuser Group

Business Value

- Increased efficiency by having more information available on the spot
- Reduction of downtime during maintenance work
- More efficient troubleshooting through remote service

Pitstop App

Create and schedule your worklfows on your shopfloor.

Key Benefits

- Define and manage your workflows in your production environment
- Schedule recurring activities and keep track of work performed
- Manage knowledge among your employees and empower new operators on the job
- Analyze your planned and unplanned downtime and find optimization potentials

Business Value

- Reduction of downtime during maintenance work
- Minimization of human errors and increase of production quality
- Documented workflows, ready for use at any time

Reicofil and RE:

Reicofil and RE:

A strong partnership. We empower you to go digital!

The RE: GmbH is a corporate start-up of the Reifenhäuser Group. Its primary goal is to empower you to successfully digitize your production processes. To this purpose, RE: and Reicofil have jointly developed solutions tailored to the nonwoven industry. Our digital solutions enable you to boost efficiency throughout your entire production. We believe this is the only way to achieve our mission of writing a new chapter of a dynamic nonwoven industry with cutting-edge technologies.

RE: in a nutshell

- founded 2020 as software company
- 100% corporate start-up of the Reifenhäuser Group
- Team: 22 versatile experts in Germany and India, merging industry and process engineering know-how with deep software development skills
- Target: Defining a new industry standard for digital products, being the "speed boat" for extrusion-specific solutions
- Task: Solving core customer requirements of both the nonwoven and film extrusion manufacturing business units of Reifenhäuser

TAKE THE FIRST STEP NOW TO LONG-TERM SUCCESSFUL PRODUCTION.

For further information, please contact your Key Account Manager.

The products shown in this presentation represent the current state of the product roadmap. We are continuously developing our products, so that there may be differences in the design or naming of the products at a later stage.

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