



**Reifenhäuser**

The Extrusioners

**Reifenhäuser Group**

Digital Product Portfolio

# Digitalization at Reifenhäuser

## We keep your production safe

Connecting machines does not affect your production!

## We can connect existing lines and peripheral equipment

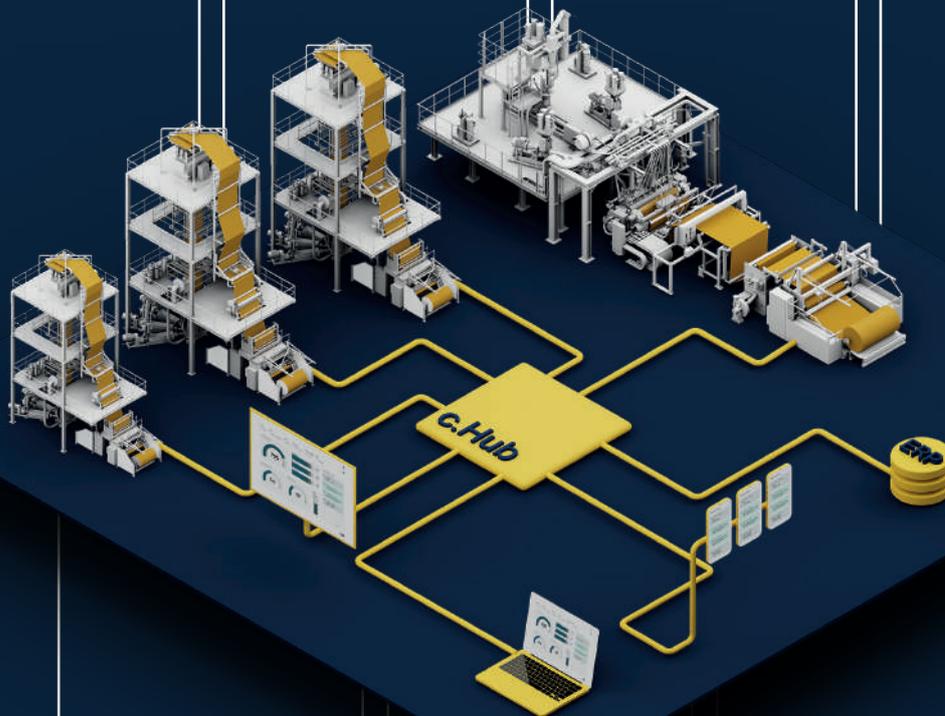
from multiple types and vendors

## We deliver on your premises

Your data is secure and under your control

## We provide a new level of data transparency

with extrusion-specific applications



## We push the data to your laptops and mobile devices

You are always LIVE informed within your manufacturing network

## We understand the plastics extrusion production

and can customize the solution to your needs

## We integrate with existing systems like ERP/MES

to revolutionize your production processes

# c.Hub Middleware

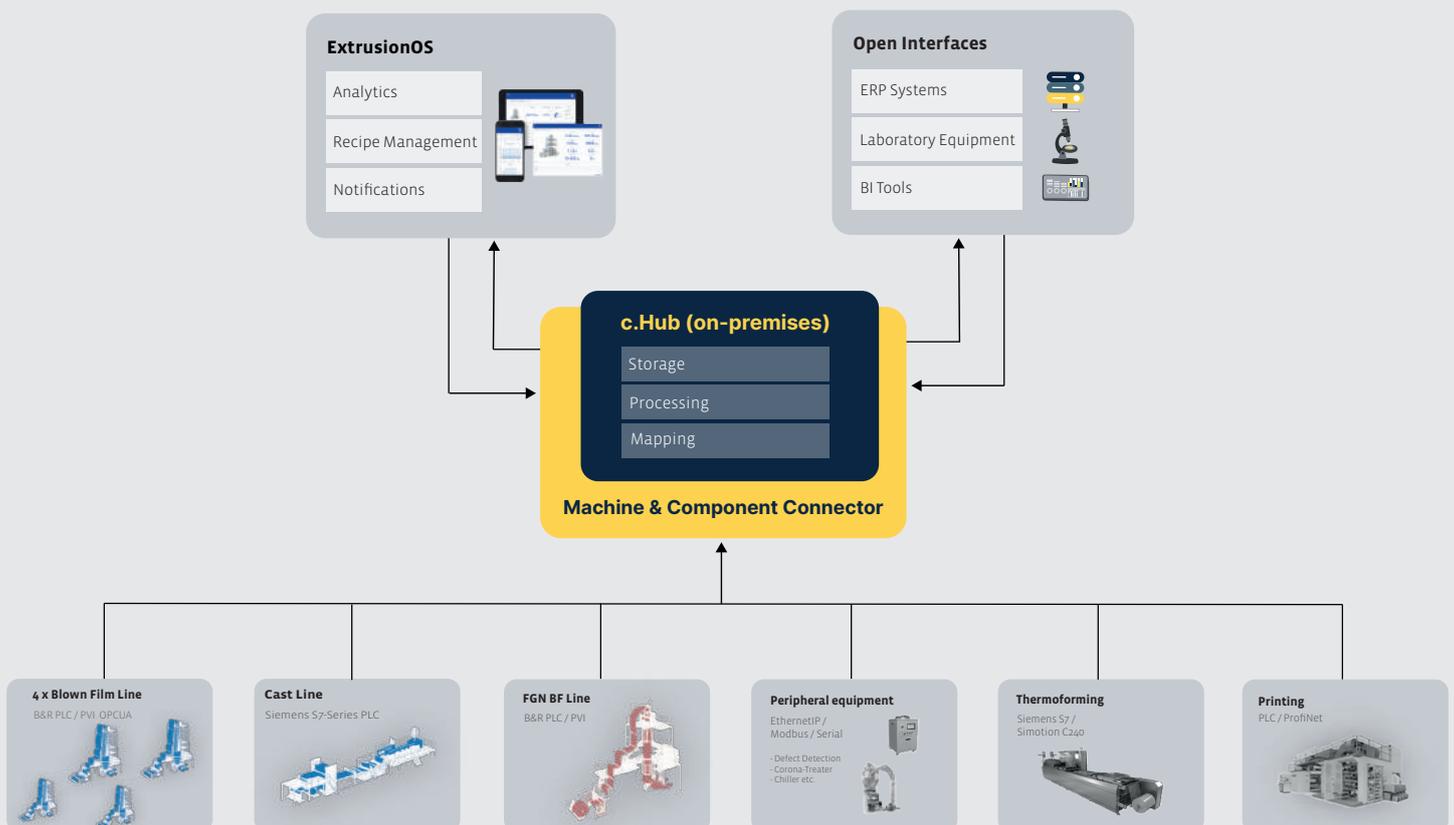
Gain sustainable insights and process transparency by connecting all your lines and machines. Tailored to the plastics extrusion industry to easily analyze, visualize and optimize your production.



## The c.Hub Middleware

- is the single point of truth for all your data. No more data silos.
- does not affect your running production. Data is gathered and stored on your premises. You always stay the master of your data.
- helps to collect and harmonize data between different assets, machine types and applications in real time.
- enables you to use your production data for further data analysis.

## The c.Hub Ecosystem



# ExtrusionOS

Overview and Core Bundle

# The ExtrusionOS Suite and its features

Our digital products help you to solve the most common challenges in plastics extrusion 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 brochure are accessible via the ExtrusionOS user interface. The c.Hub and the ExtrusionOS Suite can be used with new assets as well as easily retrofitted to existing lines.

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. 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.

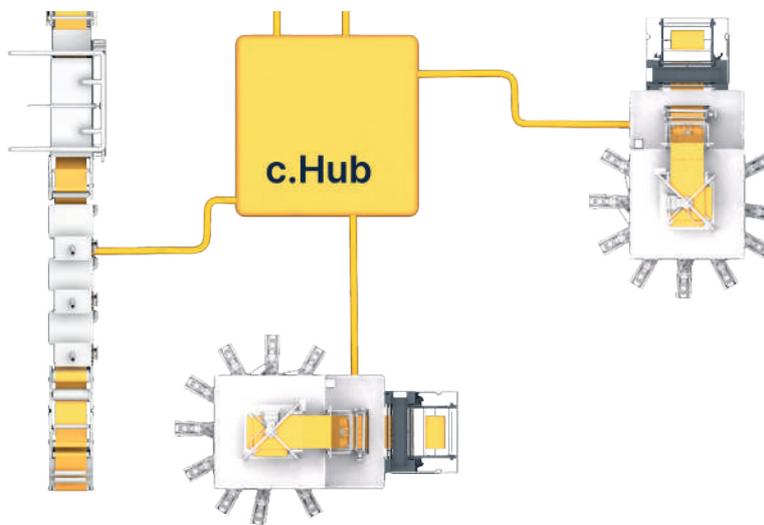
# ExtrusionOS Bundles

Features	Core & c.Hub Middleware	Machine Health	Production Compliance	Defect Analytics
<b>Production Overview</b> Key parameters of all your assets	✓	✓ combined with equipment-specific thresholds	✓ combined with product-specific thresholds	✓ combined with defect-specific thresholds
<b>Machine Monitor</b> Act / set values of all connected machines	✓	✓ combined with equipment-specific thresholds	✓ combined with product-specific thresholds	✓ combined with defect-specific thresholds
<b>Trend Builder</b> Freely configurable trends	✓	✓ combined with equipment-specific thresholds	✓ combined with product-specific thresholds	✓ combined with defect-specific thresholds
<b>Benchmarking Tool</b> Creation of data snapshots and benchmarking	✓	✓ combined with equipment-specific thresholds	✓ combined with product-specific thresholds	-
<b>Equipment Threshold Manager</b> Defining which thresholds apply to which equipment properties	-	✓	-	-
<b>Condition Monitoring</b> Pre-defined dashboards for the specific equipment	-	✓	-	-
<b>Health Notifications</b> configuration of messages when threshold values are exceeded	-	✓	-	-
<b>Order and Roll Data Management</b> Manage your orders and rolls in context with other production data	-	-	✓	✓
<b>Product Management</b> Set product specific thresholds to meet compliance regulations	-	-	✓	-
<b>Compliance Monitoring</b> Dashboard to monitor current production vs. product specific thresholds, predefined	-	-	✓	-
<b>Compliance Reporting</b> Reports if you were within/outside the thresholds of a specific product during production with history of threshold violations	-	-	✓	-
<b>Compliance Notifications</b> Configuration of notifications when thresholds are exceeded, depending on a running product	-	-	✓	-
<b>Defect Analyzer</b> 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 all other ExtrusionOS bundles. In the table you get an overview of the included features. Features listed in bold and blue are now available. The other features will be available in early Q4 2022.

# ExtrusionOS 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.



## Key benefits

- ✓ Applications based on process engineering know-how of the Reifenhäuser Group
- ✓ Out of the box connectors for the major industry protocols to receive data quickly and secure
- ✓ Easy integration of Reifenhäuser machinery via “plug & play”
- ✓ Intuitive and user-friendly interfaces to adjust the data pipeline

## Business Value

- ✓ Gain new **Transparency** that enables you to measure your OEE and increase your productivity.
- ✓ Benefit from better **Traceability** that enables you to reduce your quality costs and customer complaints.
- ✓ Enhance your **Troubleshooting**, solve problems faster and increase the availability of your assets.





# ExtrusionOS

Additional Bundles

# ExtrusionOS Machine Health

The fitness tracker for your shopfloor

The features of this bundle support you to detect, store and historically trace the condition of all connected equipments and to optimally set them up based on the gained insights. You can optimize your processes along the entire process chain.

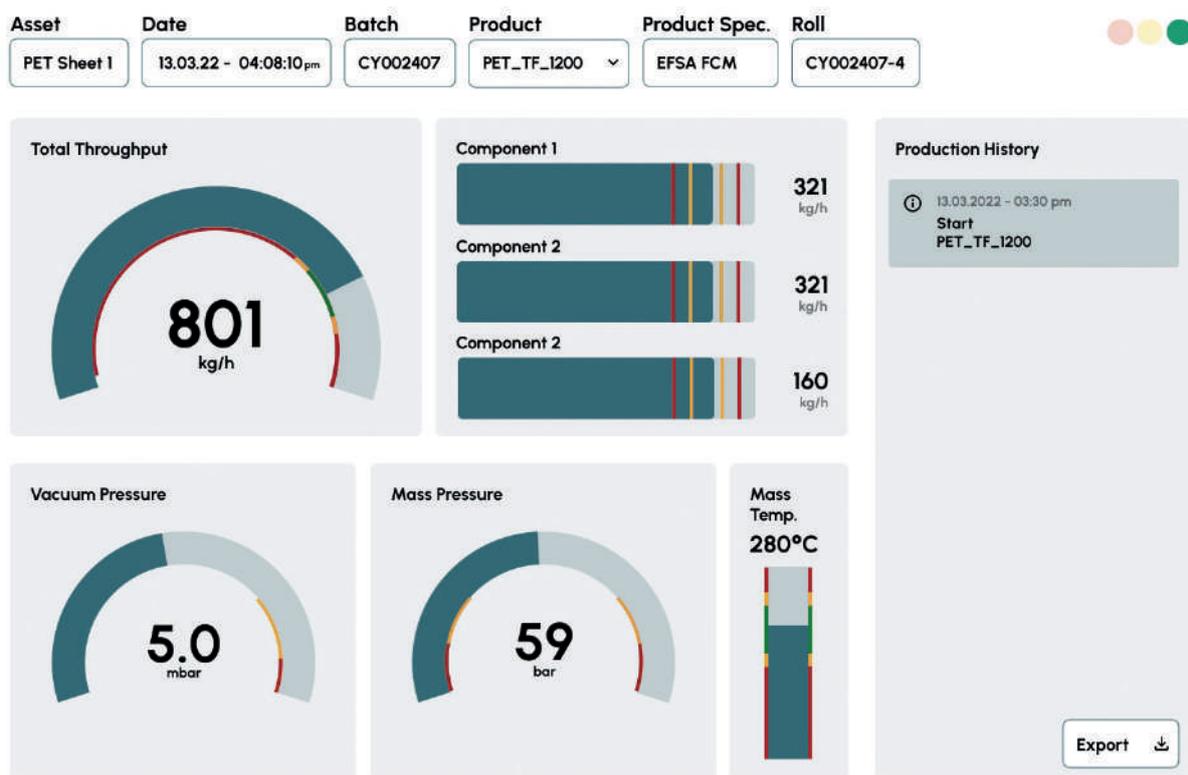


The ExtrusionOS Machine Health Bundle is an upgrade version with new features and extended functionalities activated for the key features of the Core Bundle. If you want to use ExtrusionOS Machine Health, it is required to first opt for, install and configure the c.Hub.

# ExtrusionOS Production Compliance

Enhance your customer satisfaction with a quality documentation from the first to the last meter

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 to all relevant stakeholders. This bundle enables you to act fast and significantly reduce errors and customer complaints.

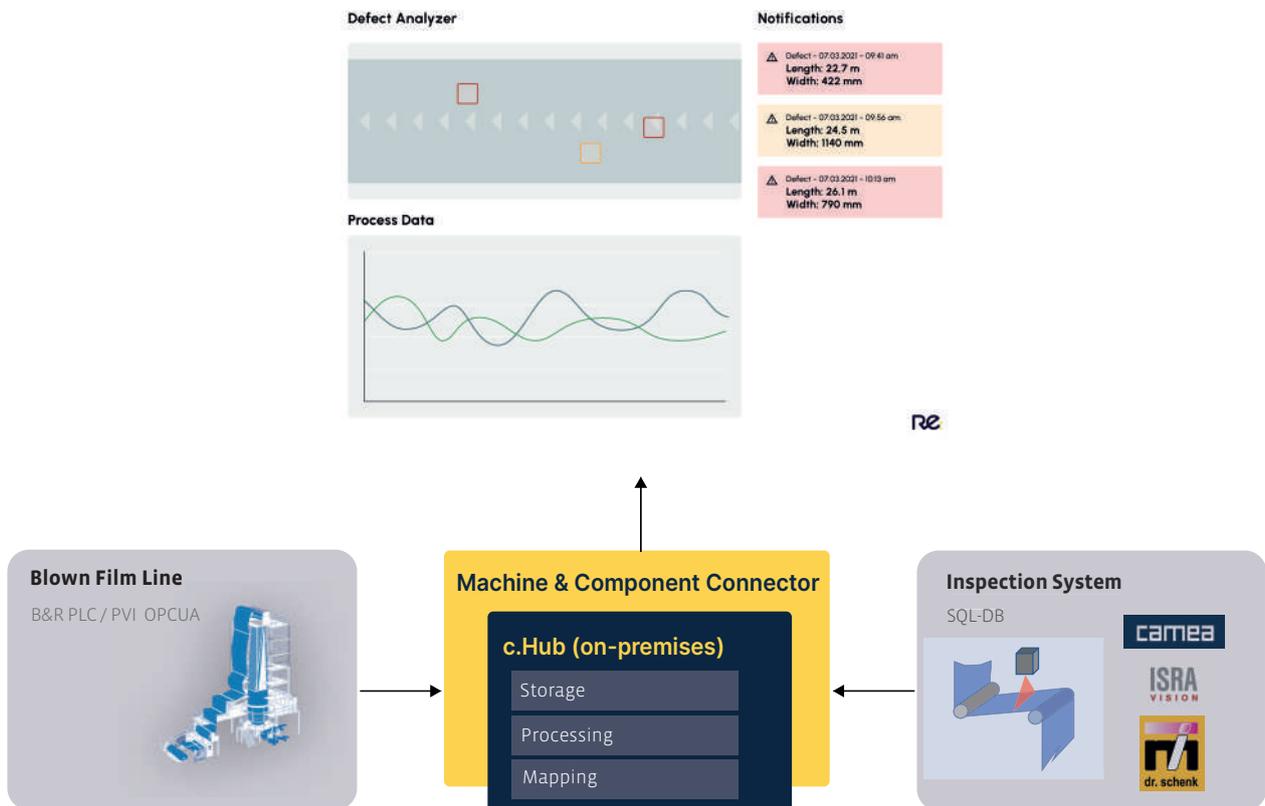


The ExtrusionOS Production Compliance Bundle is an upgrade version with new features and extended functionalities activated for the key features of the Core Bundle. If you want to use ExtrusionOS Production Compliance, it is required to first opt for, install and configure the c.Hub.

# ExtrusionOS Defect Analytics

All in one place: Easily correlate your production data, defects from inspection systems, and quality data from the laboratory

Reduce product defects by replacing manual with digital data transfer and analysis. This bundle helps you to quickly identify and locate defects, enabling you to remove defective rolls before they are sent to the customer. Real-time alerts allow you to react immediately and avoid downtimes.



The ExtrusionOS Defect Analytics Bundle is an upgrade version with new features and extended functionalities activated for the key features of the Core Bundle. If you want to use ExtrusionOS Defect Analytics, it is required to first opt for, install and configure the c.Hub.

# Reifenhäuser 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 the Reifenhäuser Group have jointly developed solutions tailored to the plastics extrusion 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 industry with cutting-edge technologies.



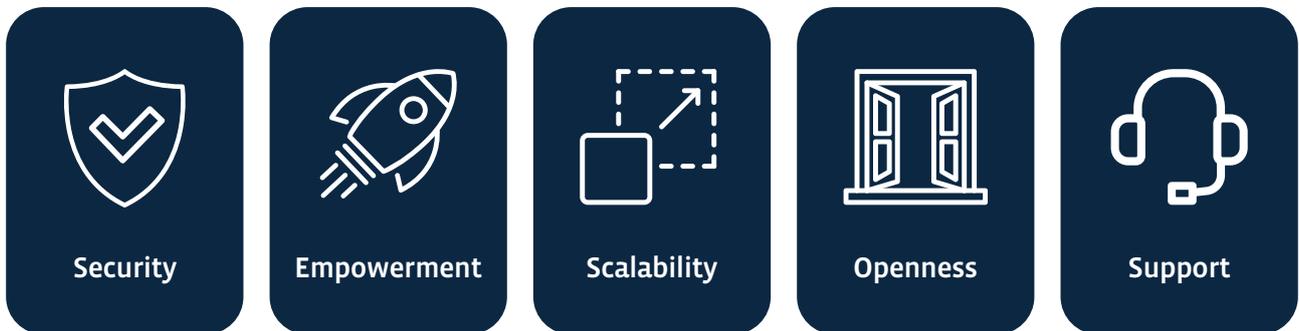
## RE: in a nutshell

- founded 2020 as software company
- 100% corporate start-up of the Reifenhäuser Group
- Team: 28 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 the nonwoven and film extrusion manufacturing business units of Reifenhäuser

# RE: GmbH

## More than just software

Bring your production to the next level with digital solutions that really tackle your problems.



### Key benefits

- ✓ Highest developing and security standards keep you and your data safe. Run the system in your local network, in any cloud or hybrid.
- ✓ Connect as many machines and systems as you like. Limiting factor is only network capacity and your imagination.
- ✓ We believe in self-determination and hate dependencies. Therefore, we empower you to design your own workflows and encourage you to customize the system.
- ✓ Open systems stand for longevity, sustainability and trust. We publish our software stack and underlying code - if you'd like to see.
- ✓ Get the support you need. Even though the system runs and runs and runs, we stand by if you need us.

# Digitalization is now. Let's start the journey.

For further information, please contact us.  
We will gladly advise you.

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

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