

Committed to excellence



SUPPLY CHAIN MANAGEMENT WORLDWIDE

V1.0

Content

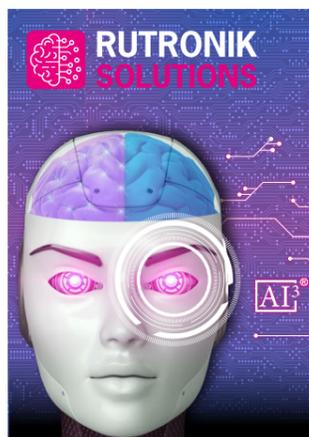
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Our Product Portfolio

 Semiconductors	 Boards & Systems
 Passive Components	 Storage Technologies
 Electromechanical Components	 Wireless Technologies
 Displays & Monitors	

Our Initiatives



Committed to excellence

Consult – Know-how. Built-in.

The Technical Competence from RUTRONIK
Worldwide and individual consulting on the spot by competent sales staff, application engineers & product specialists.

Components – Variety. Built-in.

The Product Portfolio from RUTRONIK
Wide product range of semiconductors, passive and electromechanical components, displays & monitors, boards & systems, storage and wireless technologies for optimum coverage of your needs.

Logistics – Reliability. Built-in.

The Delivery Service from RUTRONIK
Innovative and flexible solutions: from supply chain management to individual logistics systems.

Quality – Security. Built-in.

Quality without Compromise from RUTRONIK
The integrated management system (IMS) encompasses quality control, information security, environmental protection, occupational health and safety.



Fierce competition, increasing cost pressures, shorter product lifecycles, and widely varying delivery times require new solutions. Logistics solutions that help you produce faster, more cost-effectively, and above all, uninterrupted.

Rutronik has been a distributor for electronic components for more than 50 years. As an owner-managed and therefore independent company, Rutronik is one of the world's leading leading broadline distributors.

The last few years in particular have shown how fragile the global supply chain is. Rutronik as a globally operating distributor, faces these challenges every day with its Supply Chain Management.

We would like to take you with us and give you insight into the core processes of Rutronik Supply Chain Management, from procurement to our supply chain solutions powered by Electronic Data Interchange to our warehouse.



Flow of information in real time

In today's world, fast changing demands, shortages and other impacts from geopolitical events or natural disasters are the daily challenges of the modern procurement. The procurement process at Rutronik is supported by a wide range of Electronic Tools which make this process as fast, automatic and efficient as possible.

- Our ERP system calculates the right quantity for the right time and automatically transmits the order via EDI directly to the manufacturer's system.
- The manufacturer confirms the delivery date via EDI and sends a shipping notification as soon as the shipment leaves their warehouse

This gives us a high level of visibility into the status of your order at all times. Increasing or decreasing lead times, transportation time, or global shipping situation has a huge impact on our supply chain and is therefore one of our main focuses.

Stock Management

Our Strategic Materials Management team is constantly developing new sourcing processes and strategies. Our main focus is to fulfill our commitment to deliver. The Second Source Strategy supports this approach. Based on our overview of demand, fluctuation, free available stock and future incoming quantities, we are able to support our customers as flexibly as possible. In addition, employee training ensures a high level of performance in a changing market.

Warehousing in a decentralized Rutronik organisation

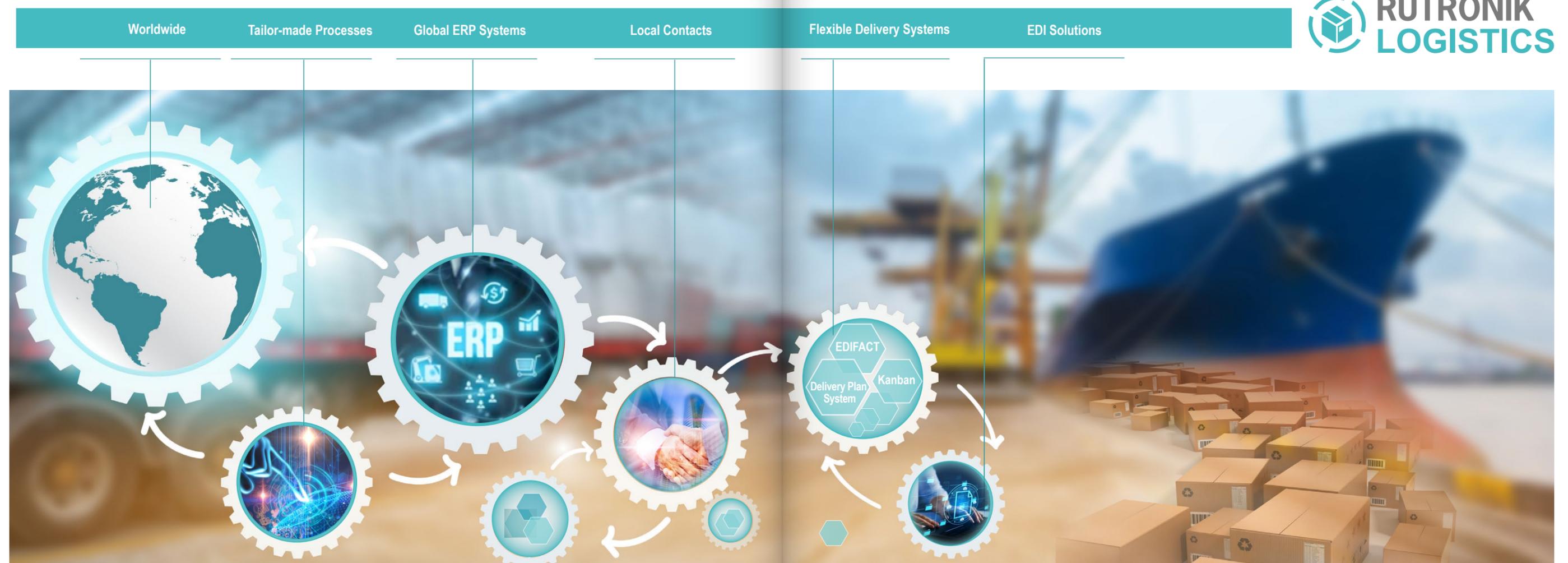
Rutronik's global warehouses in Europe, Asia, and the Americas give us the ability to source materials locally to reduce lead times, increase availability, and decrease the carbon footprint due to shorter transport distances. All warehouses share the same high level of service and are linked by a global ERP system. Our growing team of material planners, product marketing, and logistics experts around the world are another essential part of the procurement process. With the decentralization of some key procurement functions to local regions, Rutronik has laid the foundation for future growth and the best possible support for our customers.

Distribution as a service

Broadline distribution is more than just the purchase and sale of electronic components. Rutronik is a highly professional partner for all aspects within the supply chain.

- Our **consulting expertise** has technical roots: it starts with the selection of the right, efficient, and available products.
- Our **electrical engineers** assist customers with end-of-life management, obsolete, or required software.

The decentralized organization is able to focus on any type of customer size or industry. This also includes multi-business covering all business partners such as manufacturers, end customers, OEMs, or EMSs. Our strong customer and manufacturer network results in a high level of flexibility and security, creating a win-win situation for all our partners. Finally, our smart tailor-made logistics solution supports our customers worldwide.



Advantage through professional logistics systems

The electronic components market places the highest demands on logistics. First and foremost, broadliners must be able to handle very widely differing product volumes from a wide range of products. The market is also characterized by strong fluctuations in demand, which can result in very long delivery times of several months. The alternation between shortages and overproduction requires timely intervention to ensure reliable and smooth supply.

This is where the benefits of tailor-made and unified logistics systems come into play:

- High level of automation
- Reduction in labour input
- Reduction in process costs

The proper functioning of a logistics system depends on the electronic exchange of data, which enables to respond quickly to changing requirements. At the same time, processes are optimized and reduce errors. After all, manual order entry and confirmation is a potential source of error of errors.

Increased supply security

In order to achieve a high level of supply security, a medium- to long-term demand forecast as well as procurement and capacity planning are necessary. These are continuously refined and adjusted to the planning data in a continuous exchange of information. Among other things benefits include the following:

- Reduced dependency on replacement time, as scheduling is based on customer forecast figures
- Flexibility for fluctuating demand, as customers can shift and reduce order quantities within the agreed window



Process cost reduction

The supply process is analyzed in advance, optimized and defined together with the with decision makers:

- Reduction of labor input for manual activities
- Management by exception: communication only in the event of deviations and intervention or adjustment of orders
- Orders are bundled by means of collective deliveries

Individualized yet efficient

Logistics tailored to your needs is why we tailor our activities to the specific needs of your company. For example, the step-by-step adaptation of partial solutions has proven its worth when introducing a logistics system. At Rutronik, we don't work with rigid concepts.

Improve the quality of processes

Reduce errors and increased process reliability with automated data and interface exchange.

Reducing the cost of capital tied up in the supply chain

Thanks to optimized inventory management between customers, manufacturers, and Rutronik, inventories in finished goods and buffer stocks are kept low. As a result, less capital is tied up and processing costs are significantly reduced - without jeopardizing the ability to deliver. The reduction in the number of suppliers is undoubtedly one of the most important steps towards increasing efficiency and saving costs in the procurement of electronic components. Many customers therefore take advantage of the benefits offered by a broadline distributor such as Rutronik. As an interface to leading and established manufacturers, Rutronik covers the entire range of electronic components.

Decision criteria

- Demands/trends
- Concentrated deliveries
- Supply security
- Parts availability
- Process costs
- Optimized Inventory
- Bond capital
- Automation (e.g. EDI)
- Flexibility
- Lead time reduction
- Stock capacity
- Packaging solutions



Process cost reduction

Delivery systems

As a broadliner, Rutronik generates half of its total sales with logistics systems and supports logistics customers worldwide.

Orders are prepared and coordinated at the company's headquarters in Ispringen, Germany, so that Rutronik can offer the same service standards in terms of uniform labels, packaging, notification, and much more.

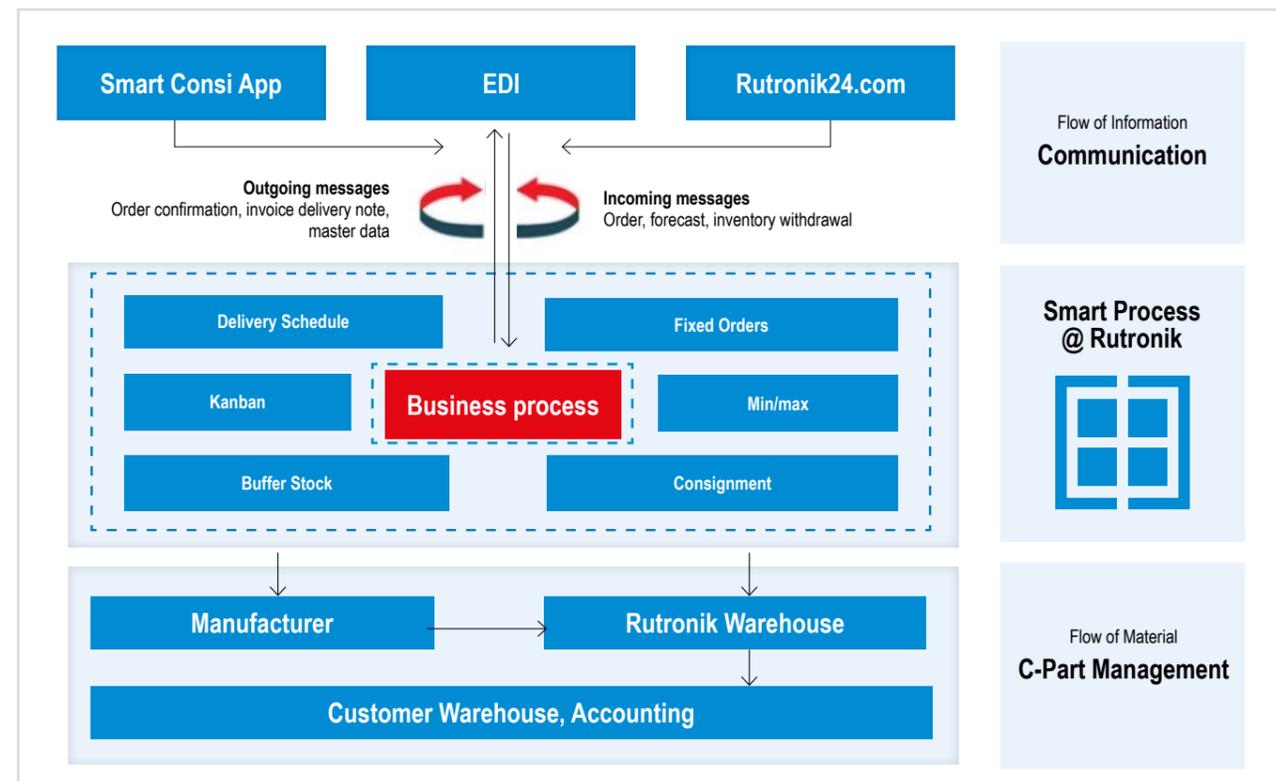
This is based on three standardized logistics systems that are easy to implement: „Delivery Plan System“, „Kanban“, and „Consignment“ with defined processes for the flow of information, materials, and values. They are adapted to the customer's processes, costs and factors, and can be flexibly combined with system support for forecasting, ship-to-line, barcodes, and many other additional options.

The result is a tailor-made solution.



Smart Processes

There's a solution for every challenge



Delivery Plan System

Smart and simple

Delivery schedule processing can be applied to all components and is suitable for a small number of product numbers. The customers forward their planned figures (forecast) to Rutronik on a rolling basis at fixed intervals.

This forecast forms the basis for scheduling. Based on the planned figures, Rutronik supplies all divisions within a defined window, and these are „fixed“ according to the definition agreed with the customer. The demand patterns can be irregular.

- Can be used for all components
- Highly flexible system (even in the event of requirement changes)
- Effective C-parts management through optimized delivery quantities
- Low labor costs

Kanban

“Card System” for secure product circulation

Kanban processing is suitable for constant requirements in the case of continual production processes. The Kanban containers are defined in the run-up with a certain filling quantity, likewise their quantity. Each container has a clear identity number. All details on a container (quantity, parts no., warehouse location, recipient warehouse and delivery time etc.) are listed on a “Kanban card”. Two containers are in operation as a minimum to guarantee product circulation. As soon as a Kanban container is empty at a customer's premises, the electronic Kanban card is forwarded to Rutronik, the container is refilled and the delivery process starts afresh. The Kanban containers are made available directly at the place of use.

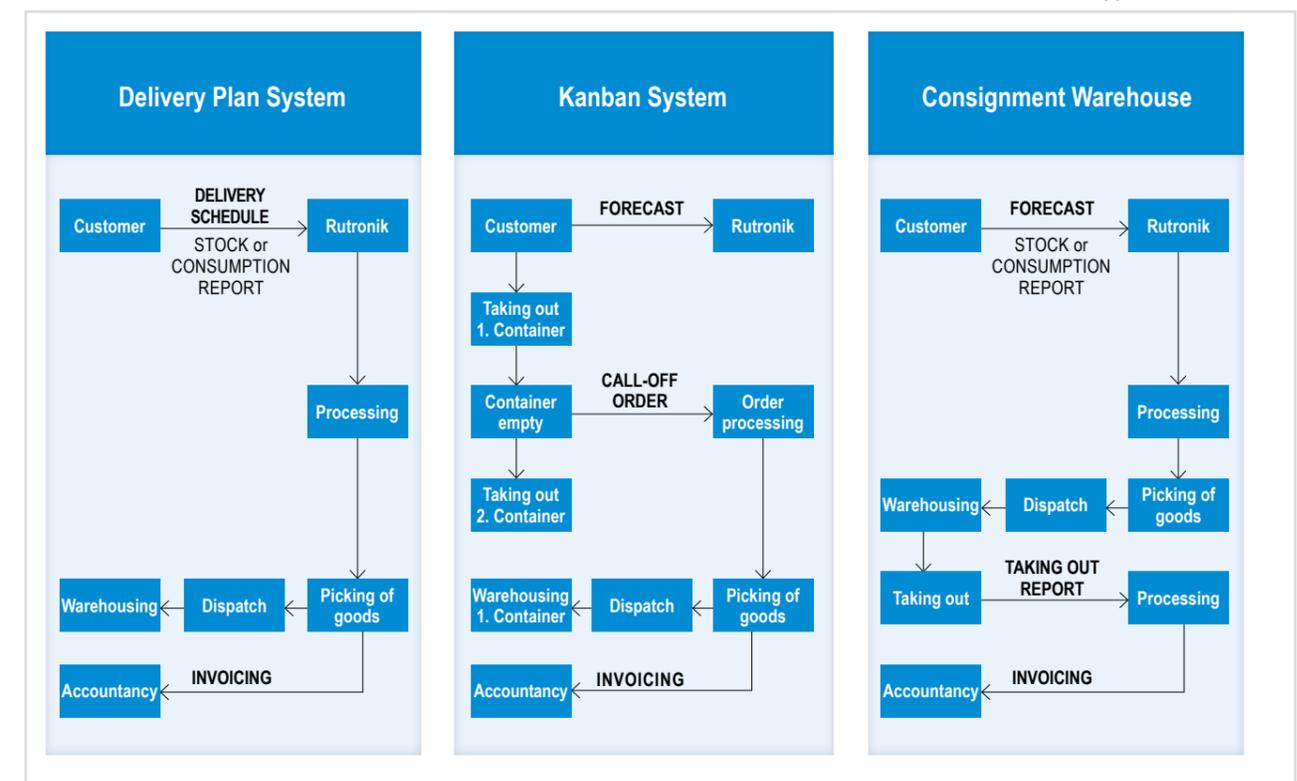
- Self-operated control loop
- Reduced material inventory and capital tie-up
- Reduced throughput times
- Can be combined with multi-use container system

Consignment Warehouse

Flexible and reliable

The consignment warehouse is an ideal solution for production subject to short-term fluctuations. While the customer merely provides the storage space, Rutronik provides the goods. Invoices are only written out once goods are withdrawn from the warehouse. Stocks without warehouse evaluation are kept separately. Customers are therefore required to display the warehouse by way of EDP technology, and information can be exchanged electronically. Various models are available for filling the consignment warehouse, such as consumption-controlled min/max filling or requirement-controlled via forecasts.

- High availability and supply security
- Low processing input
- Reducing capital tied up in the supply chain
- Vendor managed consignment inventory
- Centralised inventory controlling via our specialist department
- Also available as an app



When looking at the total cost of ownership, it becomes clear that C-parts management in particular can benefit from the advantages of modern logistics systems. This is because tailor-made, automated logistics solutions not only guarantee the availability of materials, but also simplify and accelerate procurement processes, thereby reducing process costs.

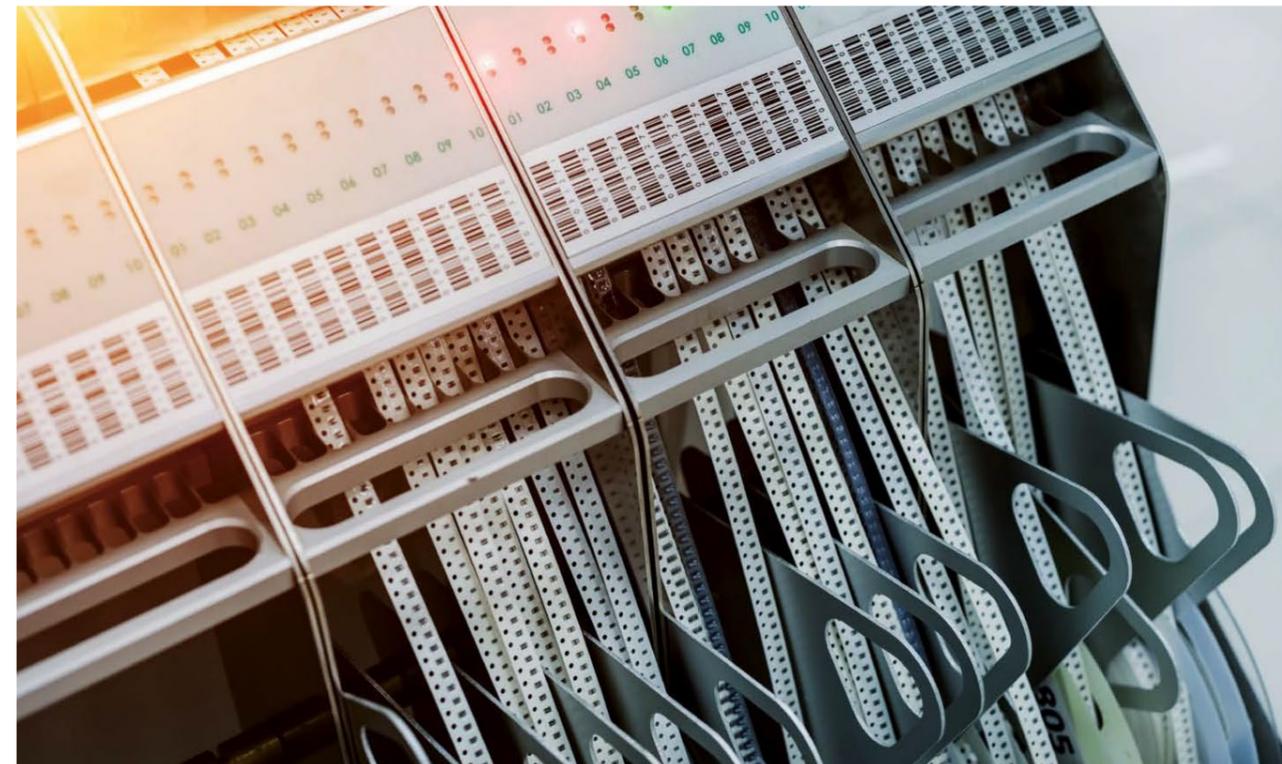
C-parts management is subdivided into the administrative area of ordering and, on the other hand, the physical movement of goods. Orders are placed via the use of the EDI (Electronic Data Interchange) data interface and one of the three models consignment, Kanban, and scheduling agreement. These three process control tools can also be combined or optimized through the use of VMI (Vendor Managed Inventory) models. With these models, the supplier has access to the customer's inventory and demand data of the customer, which significantly improves efficiency in the supply chain. Thanks to automation, the logistics processes are also less error-prone and process quality increases.

The cost of physically moving the goods can be reduced by bundling the quantities. In larger delivery batches the requirements over several weeks are grouped together and delivered instead of small weekly quantities.

The Rutronik ERP automatically adds up the jointly defined quantities. This reduces process costs considerably, as many steps are eliminated - from ordering, goods receipt and collection to subsequent invoice verification.

Another bundling option is to use larger packaging units - common sizes range from 5,000 to 50,000 units. In the chip resistor sector in particular, this also has a positive effect on the set-up times of SMD machines: If a company changes for example, from a roll size with 5,000 resistors to a pack of 10,000, the set-up costs are halved.

With an annual requirement of several million or even billions of a component, this adds up to a greatly reduced number of packages or pallets, a considerable acceleration in incoming goods and therefore a significant reduction in throughput times.



Increasing efficiency along the supply chain

Consolidation with potential

The average selling price (ASP) of electronic components varies significantly depending on the product group. When it comes to C-parts such as resistors and capacitors, companies face significantly higher inventory and consulting costs despite a lower selling price. Compared to high-value components, the costs are ten times higher - with a sales price that is a thousand times lower.

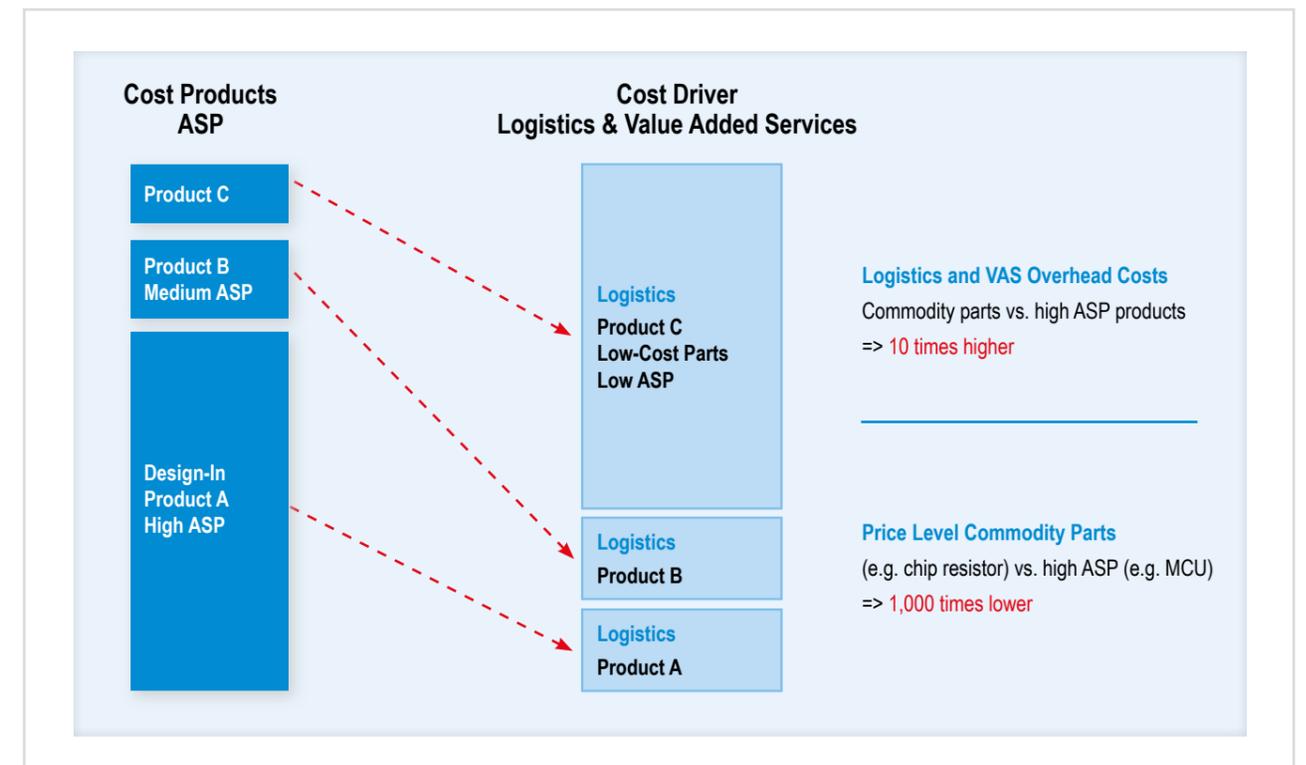
Rutronik's overall cost structure is also based on C-parts - but customers can only achieve real savings if they not only purchase C-parts, but also other components from our portfolio.

After all, higher volumes create maximum synergies. The supply chain solutions at Rutronik focus on C-parts. Keeping the costs of the entire process as low as possible, from ordering to assembly on the SMD line, is our main goal.

Our team of experienced Supply Chain Managers will advise you and work with you to develop the perfect concept to suit your company and processes.



Comparison of the relative total costs for Design-In parts vs. low ASP components



Process Visualization for Tailor-Made Systems

Increasing efficiency along the supply chain

Over the past decades, Rutronik has continuously developed tools to implement, improve, and monitor forecasting processes with all partners along the supply chain. Today, we have a flexible system that allows us to change key process parameters at the click of a mouse to respond as quickly as possible to the daily challenges that affect the supply chain.

Our delivery simulation tools allow us to test the entire supply chain process before going live with the EDI interface. In addition, the average inventory levels are calculated and visualized to provide a 360-degree view of the material flow.

Supply Chain Data Visualization

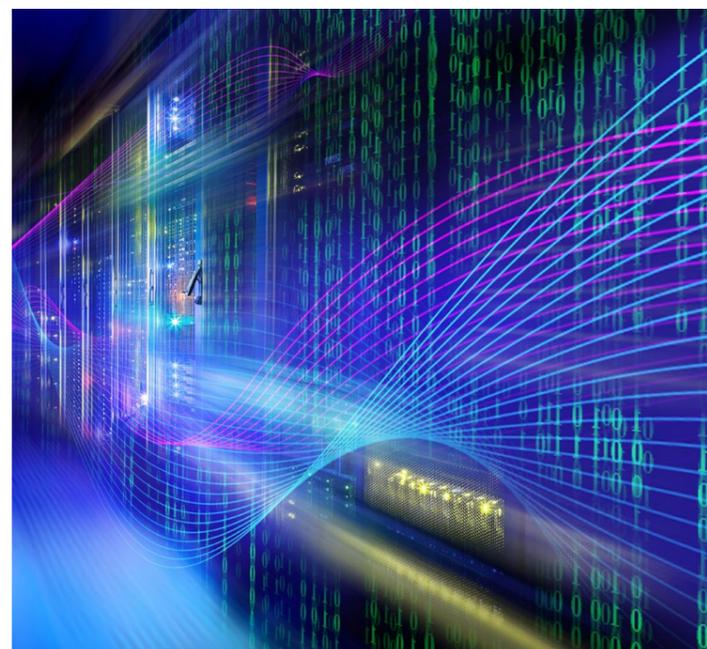


Big Data

Smart delivery systems rely on a large amount of information. This data can change daily on both the customer and supplier side, increasing the complexity of our daily business.

In order to always have a complete overview of the situation, we have developed individual tools and dashboards that provide us and our customers in a valuable way.

Bringing together data from the past and the coming months together in the right context is essential to make the best decisions for the future today.



Electronic Data Interchange

EDI - Jointly benefit

Gartner Research shows that correcting an error during the order process is 10 to 15 times more likely than the order process itself. Although EDI has been an established process for many years, the number of messages transmitted continues to increase. Rutronik's EDI portfolio is as diverse as our customers' industries and markets. Rutronik speaks its customers' language. And Rutronik supports the individual EDI situation. Many different message types, all established EDI forms and the most important transmission channels are familiar to Rutronik's EDI experts and part of their daily business. Together with the partner, a dedicated team at Rutronik analyzes the requirements and the current situation. They develop an individual solution to create a win-win situation. During the definition Rutronik's experts follow tried and tested processes and procedures when defining the details and setting up the connection. Of course, they have the flexibility to react to special requirements or situations.



List of documents Rutronik is exchanging with its suppliers

- Orders
- Order confirmations
- Order changes
- Delivery notes
- Invoices
- Stock information
- Availability information
- Sales reports
- Ship & debit reports
- Logistic reports
- Price lists
- Forecast information
-

Content format

To enable automatic import into the customer's IT system, the data must be converted to a standard format. Worldwide many different types are in use.

Rutronik can handle the most important ones:

- UN/EDIFACT
- VDA
- XML
- SAP-IDOC
- OpenTRANS
- ebXML
- RosettaNet
- XLS
- CSV
- TXT
- ...

List of documents Rutronik is exchanging with its customers

- Forecast information
- Orders
- VMI handling
- Consignment removal
- Consignment refill orders
- Delivery notes
- Invoices
- Consignment
- Order confirmation
- Order change
- ...

Message format

Standard protocols have been defined for a reliable transfer of data between sender and recipient.

Rutronik supports all established variations:

- AS2
- FTP/FTPS
- VANs
- X400
- OFTP
- SMTP (Email)
- ...

The warehouse and logistics center includes approximately 8,600 m² of storage and order picking space. There are also three platforms with approximately 6,000 m² of storage space. This provides space for up to 11,000 pallet locations, approximately 185,000 normal rack locations, and an order buffer of approximately 3,000 locations. The latest building and energy technology has been incorporated to ensure maximum energy efficiency, while a photovoltaic solar panel system has been installed on the roof. This generates peak values of up to 1 megawatt. Approximately 60% of the total energy is used for consumption. The option to add two concrete floors for future conversion ensures that the building is future-proof and sustainable. Thanks to the modular design of the overall system, individual areas such as the order buffer, the manual and automatic high-bay storage system, the conveyor technology for the new racking area and the semi-automated goods receiving area, can be tested extensively, independently of current operations before each of the sub-processes is carefully transferred to production.

The design of the storage facility focused heavily on maximum availability. In the event of a power outage, an emergency power supplies 1.2 megawatts of power. The building itself, the conveyor technology and the software, is supplied by the emergency power supply.

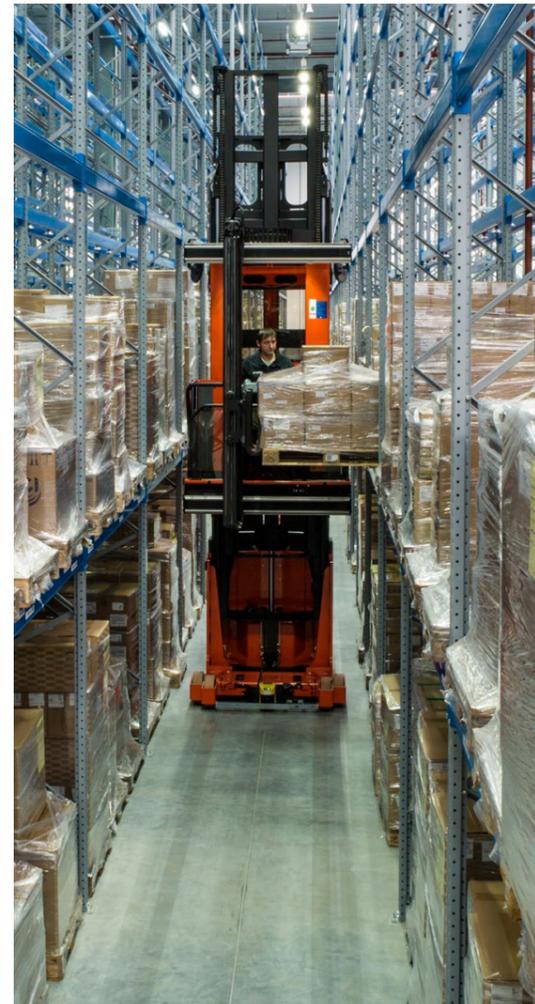
Every movement process is designed to allow for manual solutions in the event of an emergency.

Rutronik now has two new peer computer systems in mirrored operation: Two fiber optic cables supply power from two different junction points. This guarantees a secure data connection. We use LED technology to illuminate many areas of the building. Peripherals such as cables and control cabinets have also been reduced in number, creating a further gain.

With the new building, we have created the conditions that will enable us to meet our customers' needs in the future and stay ahead of the competition.



Permanently available
More than **28 Billion** Parts



Outstanding performance: the big plus of distribution



Thinking **Globally** | Acting **Locally**



Shipping | Daily **Performance**

The benefits at a glance

- Worldwide shipping and support in accordance with German standards of quality → Quality guaranteed regardless of national standards
- Business model can be scaled worldwide → Adapted to local conditions
- Identical level of service and support for all customers across the globe → Coordinated communication at all levels
- In-house, high-performance data center → Data security via in-house data storage (in-house data center)
- Single data source worldwide → Same level of information for all employees worldwide
- Global logistics solutions and eProcurement traceability → Outstanding flexibility and traceability around the world

Committed to excellence



**FOCUSED ON YOUR
DAILY BUSINESS**

Forecast Management

Import/Export

Warehouse

Commission

EDI

Supply Chain
Solutions

Packaging

Dispatch

....

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