The Right Solution for Any Manufacturing Environment

Material and Information Flow Systems from Rexroth

3 kg  25 kg  30 kg  70 kg  120 kg  250 kg  300 kg
Diversity and adaptability.
Critical success factors for any company

Industries are increasingly shaped by short innovation times and product service lives. This situation demands production systems that can be quickly adapted to changing conditions. The ability to produce a growing number of product variations in small batches is now more critical than ever.
Efficiency through modularity
Rexroth offers efficient material flow solutions that can be tailored and expanded to fit every application: For example, transfer systems with workpiece pallets for automated assembly lines or for interlinked manual systems, as well as chain conveyor systems for the food and packaging industries, and cleanroom/conveyor systems for the photovoltaic and semiconductor industries. All systems have a completely modular design, making fast planning and design a reality.

Excellent quality and high project reliability – with fast implementation
Rexroth’s material and information flow systems are manufactured in line with specifications for quality assurance in accordance with DIN ISO 9000. They comply with all common standards for ergonomics and occupational safety. A long service life is also ensured thanks to robust mechanical design. Intelligent tools make short project times possible – from planning to start-up.

A partnership with a global presence
Bosch Rexroth AG is active in all of the important markets around the world and has an extensive network of sales partners. These partners implement transfer systems and chain conveyor systems of any size and ensure fast and professional technical service.
TS 1 transfer system.
For precise assembly and fast processes

Rexroth’s TS 1 transfer system is the right choice when it comes to efficient production of small products or components. It is tailor-made for the precise assembly of complex products. Integration into the preassembly and subassembly processes in a larger system is one of its many strengths.
**Compact, fast, precise**

The TS 1 system offers everything needed for fast, precise production:
- Extremely accurate components
- High throughput with short cycle times
- Small surface area thanks to its compact design
- Economical with a low initial investment and numerous combination options for individual components

TS 1 fulfills the same high quality standards for service life, robust performance, and ease of maintenance as all other Rexroth transfer systems.

**Selected TS 1 components**

Small products and precise processes demand the highest positioning and repetition accuracy, all of which is possible with TS 1 positioning units.

Various workpiece pallet models in polymer and aluminum round out our range of precise components.

<table>
<thead>
<tr>
<th>Workpiece pallet weight</th>
<th>Workpiece pallet size</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3 kg</td>
<td>80 x 80 mm</td>
<td>Assembly of small products</td>
</tr>
<tr>
<td></td>
<td>120 x 120 mm</td>
<td></td>
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<tr>
<td></td>
<td>160 x 160 mm</td>
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</table>

Examples:
- Electrical technology
- Electronics
- Telecommunications
- Precision mechanics
- Medical technology
- Optics

Application examples
TS 2\textit{plus} transfer system. All-around performance for a wide range of applications

Rexroth’s TS 2\textit{plus} transfer system is the most versatile choice for efficient production. It offers a wide-ranging, modular system of components to accommodate a broad spectrum of products, production tasks, and customized layouts.
Versatile, robust, adaptable

Individual adjustment made easy:
• Five conveyor media can be combined to meet the demands of the assembly process
• Workpiece pallets matched to the product size
• High maximum load of up to 100 kg per workpiece pallet

Special TS 2plus components

A broad range of predefined macro-modules increases system flexibility and performance and reduces planning and design effort to a minimum. In addition to numerous components for curves, transverse conveyors, positioning units, and drive units, TS 2plus also offers various conveyor media such as polyamide belts, toothed belts, flat top chains, and accumulation roller chains.

Totally new: The Vplus accumulation roller chain for fast transfer times between the stations and shorter cycle times. An integrated driven roller design ensures fast conveyor speeds and accelerations. As a result, workpiece pallets run 2.5 times faster on the Vplus chain than the chain itself moves. A lower chain speed ensures smoother running and less wear. Due to the high acceleration values, the workpiece pallets quickly reach their transport speed again after exiting the processing stations. This saves time and increases productivity.

<table>
<thead>
<tr>
<th>Workpiece pallet weight</th>
<th>Workpiece pallet size</th>
<th>Applications</th>
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</thead>
<tbody>
<tr>
<td>Up to 100 kg</td>
<td>160 x 160 mm up to 1040 x 800 mm</td>
<td>Assembly tasks involving medium sizes and weights</td>
</tr>
<tr>
<td>Examples:</td>
<td>- Electrical technology - Electronics - Automotive suppliers</td>
<td>- Telecommunications - Precision mechanics</td>
</tr>
</tbody>
</table>

Application examples
TS 4\textit{plus} transfer system. Reliable transport of workpieces up to 250 kg

The TS 4\textit{plus} is designed to transport heavy workpieces weighing up to 250 kg, making it the ideal solution for applications in the automobile and automotive supplier industries, the home appliance industry, and the consumer electronics industry.
Custom layouts
The TS 4plus system of modular components offers numerous planning and design options, all of which enable you to implement efficient material flow solutions for the widest range of tasks. This can involve everything from simple circuits with a linear or rectangular construction, to more complex systems with many branches.

A sturdy system
TS 4plus transports workpiece pallets on durable accumulation roller chains that exhibit very little friction. They ensure reliable transport of the workpiece pallet, even under tough production conditions.

Universal workpiece pallets
The TS 4plus workpiece pallets are set apart by universal carrying plates. The 30 standard versions with dimensions from 443 x 443 mm to 1243 x 1243 mm are available in two plate thicknesses and fulfill numerous demands in a multitude of applications. As with the smaller TS 2plus system, the workpiece pallets are guided on the sides and, as a result, can also be used on roller conveyors.

<table>
<thead>
<tr>
<th>Workpiece pallet weight</th>
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<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 250 kg</td>
<td>443 x 443 mm up to 1243 x 1243 mm</td>
<td>Production of large and heavy workpieces</td>
</tr>
</tbody>
</table>

Examples:
- Electrical technology
- Electronics
- Automotive engineering
- Automotive suppliers
- Domestic appliances

Application examples
TS 5 transfer system. Modular and maintenance-free for loads up to 300 kg

The TS 5 transfer system transports loads weighing up to 300 kg! Rexroth brings a new class of performance to the market with this extremely robust new development. This transfer system offers you considerable advantages that will pay off in production, day in and day out.
Benefit from the advantages

Multi-functional thanks to clever component design

You can easily implement various section layouts with numerous different curves. The choice is yours for transporting parts, as well: Either directly on continuous rollers, or on especially safe and gentle workpiece pallets available in several sizes. Diverters and junctions are also available to change the direction of movement of a workpiece pallet while maintaining the orientation of the parts. The positioning unit ensures precise placement of the workpiece pallet in the processing stations.

Benefit from the advantages
TS 5 stands for high system uptime thanks to a maintenance-free king shaft drive concept. No oil or lubrication is required. Its sturdy design makes this system ideal for tough production environments and high loads. A chainless drive concept gives you exceptional planning freedom, enabling branches on both sides, for example. Depending on the layout, you can eliminate additional drive stations, saving valuable resources. This industrially manufactured modular system with standardized components is characterized by short delivery times, simple set-up, and fast commissioning. Our MTpro planning software makes the entire planning and ordering phase for your custom system easy, convenient, and fast.

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<th>Workpiece pallet weight</th>
<th>Workpiece pallet size</th>
<th>Applications</th>
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</thead>
<tbody>
<tr>
<td>Up to 300 kg</td>
<td>Edge lengths between 455 mm and 1240 mm</td>
<td>Production of large and heavy workpieces</td>
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<tr>
<td>Examples:</td>
<td></td>
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<tr>
<td>– Electrical technology</td>
<td></td>
<td>– Automotive suppliers</td>
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<tr>
<td>– Electronics</td>
<td></td>
<td>– Domestic appliance manufacturers</td>
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<tr>
<td>– Automotive engineering</td>
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<td>– Heating industry</td>
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</tbody>
</table>

Application examples

Efficient drive design with king shaft

Positioning unit

Universal workpiece pallet
TSsolar transfer system. Gentle, clean, efficient. Ideal for module production

The production of solar modules is an extremely sensitive and complex process that places the highest demands on material transport. The glass plates are large and fragile, but also extremely sensitive to contamination. TSsolar meets these demanding requirements with exceptional yet cost-effective performance.
Components for clean production and hot plates

A clean production environment plays a decisive role in module manufacturing, as this is the only way to ensure a uniformly high level of product quality. As a result, suitability for cleanrooms was at the forefront during the development of TSsolar and associated components.

- Fulfills the requirements for cleanroom class 6 in accordance with EN ISO 14644-1
- No contamination by silicone, grease, or oil
- Almost fully wear-resistant toothed belts with an extremely tight textile coating and singed edge
- Special high temperature-resistant toothed belts and guide profiles for transporting hot glass plates with temperatures of up to 200°C

Components for gentle material flow

The production process for solar modules demands transport that is completely free of jolts, shaking, and accumulation. This is why the TSsolar conveyor sections are divided into several segments.

- Depending on the respective module dimensions, the individual segments are usually two to three meters long, 0.6 to 1.5 meters wide, and consist of two to four tracks
- Each segment has its own drive, which stops to position the module for processing or if the following conveyor segment is still occupied by another module
- The lift transverse unit of the TSsolar gently moves the modules from longitudinal conveyor sections to transverse conveyor sections

<table>
<thead>
<tr>
<th>Weight of the glass plates to be transported</th>
<th>Possible panel sizes</th>
<th>Applications</th>
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<tbody>
<tr>
<td>Up to 120 kg</td>
<td>2600 mm x 2200 mm</td>
<td>Module production</td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
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<tr>
<td>– Crystalline solar modules (silicon-based)</td>
<td></td>
<td>– Thin-film technology</td>
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</table>

Application examples
Cleanveyor.
Clean transport for sensitive components

We have good news for everyone looking for a powerful, high-quality transport solution for cleanrooms. Bosch Rexroth AG and Middlesex Industries SA are cooperating to market cleanroom conveyor systems based on proven Middlesex technology. The best example: The Cleanveyor – a collaboration for customer benefit.
For gentle transport in clean environments

The Cleanveyor transfer system is particularly suited for applications demanding the highest cleanliness and gentle transport. Non-friction drives minimize wear and the development of dust, preventing contamination of the transported products. A sub-division of the conveyor into individual segments that may only, for example, hold one workpiece or workpiece pallet, ensures gentle transport without any jostling or shaking. This system is also the perfect solution for applications where electrostatic discharge or chemical contamination must be reliably eliminated.

Fast and simple installation

The conveyor system is constructed from standardized profile modules. Three main modules make it possible to implement a three-dimensional, linear conveyor network. Linear drive units transport the workpieces horizontally. Rotary modules enable 90 degree rotations at the corners. The various system levels are connected by vertical lifts and ensure unimpeded transport between the individual levels. All modules are delivered ready for operation, with integrated drive and control technology, making set-up and commissioning a breeze.

<table>
<thead>
<tr>
<th>Weight of the workpieces to be transported</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 25 kg</td>
<td>Cleanroom applications up to class 3 in accordance with EN ISO 14644-1</td>
</tr>
<tr>
<td>Examples:</td>
<td>- Semi-conductor industry</td>
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<tr>
<td></td>
<td>- Hard disk drives</td>
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<td></td>
<td>- Photovoltaics</td>
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<td>- Pharmaceuticals</td>
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<td></td>
<td>- Medical technology</td>
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<td></td>
<td>- Microsystems</td>
</tr>
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</table>

Application examples

- Hard disk drives
- Photovoltaics
- Semi-conductor industry
- Pharmaceuticals
- Medical technology
- Microsystems
VarioFlow.
Exceptionally capable, surprisingly affordable

VarioFlow is an economical transport system for many applications. It is easy to plan, highly capable, extremely robust, and can be configured or expanded for almost any type of work. Whatever the task, VarioFlow can be adapted to handle it, even critical transport sections where many other transport systems would fail.
Simple adaptation to the most varied tasks
To adapt VarioFlow to new transport tasks, you usually only have to exchange a few components on site. A large selection of standardized horizontal curves, vertical curves and diverters provides you with even more freedom for individual planning and implementation. It does not matter whether transport is vertical or horizontal. In addition to the conveyor layout with curves, curve wheels, and profiles, the drive concept is also fully modular. Drives feature a compact design and allow for unlimited belt speed adjustment.

Consistently reliable transport
Numerous-style holders, fixed and adjustable guide rail brackets slide and profile rails, and cover rails from our side guide program ensure reliable guidance of the widest possible variety of parts. A number of chain versions with specific surfaces are available to transport different types of goods or products: This includes flat, cleated, universal, and ESD chains, as well as static friction, accumulation roller, and roller cleated chains.

<table>
<thead>
<tr>
<th>Conveyor speed</th>
<th>Chain width</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 66 m/min</td>
<td>65 mm and 90 mm</td>
<td>Conveyor system for factory automation, enables horizontal and vertical transport of workpieces</td>
</tr>
</tbody>
</table>

Examples:
- Metal industry
- Mechanical engineering
- Electrical industry
- Cosmetics
- Pharmaceuticals
- Food
- Packaging

Application examples
VarioFlow S.
Efficiency and reliability for the food and packaging industry

With innovative details and industry-specific equipment, this chain system will bring new life to your production processes. And if anything changes in the product range or conveyor layout, you will be won over by the unique adaptability of VarioFlow S. It has a lot to offer – find out for yourself.
Always a clean solution
Strict hygiene regulations apply in the food industry, making VarioFlow S your first choice. In addition to the aluminum version, we also offer VarioFlow S in stainless steel to meet the highest demands for hygiene and cleanliness. Another advantage is the open system design – An elegant solution for simple cleaning and to prevent the accumulation of dirt in hard-to-reach areas.

More freedom with fewer costs
Enormous tensile forces and the patented curve technology make it possible to set up long conveyor sections with just one drive. This reduces costs and results in substantial space savings in comparison to other common solutions. Accumulation operation in curves remains fully available.

Ball bearings reduce friction and increase the system’s service life.

The right chain for every application
We offer the optimum transport chain for every product, every size, and every conveyor layout. Chains are available in widths from 80 to 320 mm. All chains are available in a smooth version, with a static friction lining, or as a cleated chain. An almost completely closed chain surface makes it possible to transport even extremely small parts. Thanks to a clip lock, the chain can be assembled and disassembled at any point in the transport system quickly and easily – without tools.

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<td>5 to 66 m/min</td>
<td>80 – 320 mm</td>
<td>Conveyor system for the food and packaging industries</td>
</tr>
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</table>

Examples:
- Pharmaceuticals
- Cosmetics
- Food industry
- Packaging industry

Application examples
EcoFlow transfer system.
Linking manual workstations

The EcoFlow transfer system makes it possible to efficiently implement material flow at workstations, to link workstations, and to improve storage and consignment areas. It ensures consistent compliance with the FIFO principle and offers so-called “standardized buffers” that can be used to reduce inventory between the individual stations to the required minimum level. The system prevents waste, enables cost-effective production processes, even for small quantities, and thus makes a significant contribution towards saving time and costs.
**Versatility is its strength**
A high level of versatility and especially easy handling are what make the EcoFlow transfer system so successful. Various work processes or processing stations can be efficiently linked manually. The individual products are processed on workpiece pallets and then passed on to the next station via roller conveyors or roller sections.

**EcoFlow components**
- Custom conveyor sections, for example to interlink individual workstations
- Various track widths for specific applications
- Systems are available in steel, stainless steel, and polymer versions

**Applications**

<table>
<thead>
<tr>
<th>Linking manual workstations</th>
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<tbody>
<tr>
<td>Examples:</td>
</tr>
<tr>
<td>– Electrical technology</td>
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<tr>
<td>– Electronics</td>
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<tr>
<td>– Automotive engineering</td>
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<tr>
<td>– Automotive engineering</td>
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<tr>
<td>– Telecommunications</td>
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<tr>
<td>– Precision mechanics</td>
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</tbody>
</table>

Application examples: Electrical technology, Electronics, Automotive engineering, Automotive engineering, Telecommunications, Precision mechanics.
Extras from Rexroth.
The complete solution from a single source

A transfer system is an individual assembly that has been precisely adapted to the specified production processes. Rexroth provides you with all of the necessary components and services from a single source. This includes everything: hardware and software, planning and installation, as well reliable service.
Identification systems
These systems consist of mobile data tags on workpiece pallets, as well as reading devices that can be positioned anywhere on the assembly system. This enables direct data communication and, in turn, complete documentation of the entire production process. We offer proven solutions based on two basic principles.
- Central data storage: Data related to the process and product is collected centrally. Mobile data tags on the workpiece pallet and corresponding reading devices identify the workpieces at the processing stations.
- Decentral data storage: Data related to the process and product accompanies the workpiece. The workpiece pallets are equipped with a mobile data tag, which makes it possible to read and write data.

Simulate and then implement
Computer-aided simulation of the planned production process is one of the services Rexroth offers. All the system conditions are individually replicated and can be optimized in a targeted manner, before the transfer system is even assembled.

Simply innovative: the MTpro planning tool
MTpro is the professional software used for planning assembly systems: You receive practical support – from selection and configuration, right up to ordering the products.

Rexroth – the system supplier
Rexroth offers a comprehensive workstation program consisting of basic mechanical elements and manual work systems that fits all its transfer systems. The program includes elements for material supply, energy, light, compressed air, or presentation of information.

On request, we can take over management of the entire project: from the planning phase to a completely set up system that is ready for operation.

Service guaranteed for years to come
The quality of a transfer system or chain conveyor system not only depends on the hardware, but also demands careful planning, professional assembly, and reliable technical support. Rexroth has qualified partners who can also implement special requests and modifications. Just give us a call – we will contact you right away. Contact addresses are listed on the back of this brochure.