



Gronemeyer

LEAD BY IDEAS

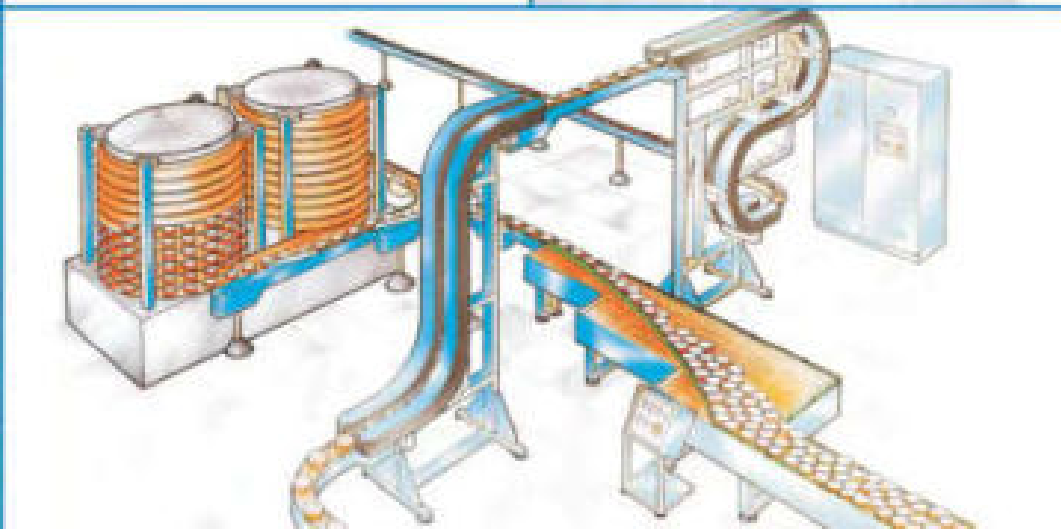
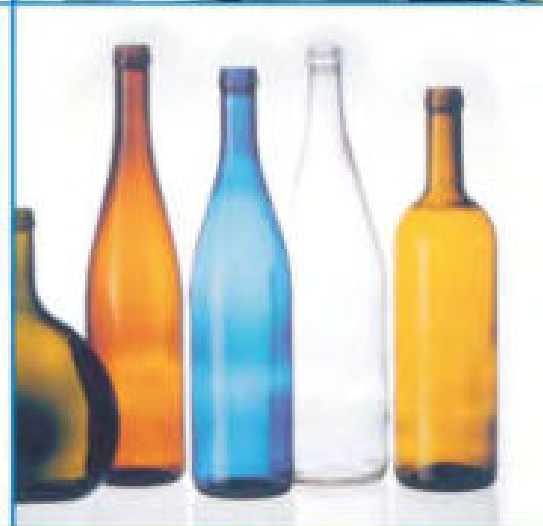
CONVEYOR SYSTEMS



CONVEYOR



SYSTEMS



Our Company introduces itself:

In the year 1918, August Paul Gronemeyer opened his company in Düsseldorf, which predominantly manufactured chains and elevators. It was apparent that he was a talented entrepreneur, with good business sense and he prided himself on his perfect workmanship. Production facilities were demolished during war time. The company was to be rebuilt in 1945 in Höxter, Weser.



In 1967, August Gronemeyer handed the reins of the company over to his son Günter Gronemeyer. Although Günter continued to follow in his father's footsteps he introduced modernization and expansion of production capacity, increasing product profile. In the mid 70s, construction and production of conveyor systems were also introduced.

It can be said our conveyor systems are now a symbol of reliability with long service life. Our systems are particularly popular within the food and beverage industry, also in industries like pharmaceutical and glass manufacturing. Our reputation has spread beyond Germany and we can boast a considerable international clientele.

In the year 1994, the continuity of family managed business was maintained by handing over of management responsibility to Mr. Peter Gronemeyer.

Customer confidence, high quality commitment and delivery performance are of paramount importance within our company.

The introduction of a quality assurance system guarantees high quality standards of Gronemeyer products.

The production facilities with well proven drive components, enables achievement of necessary production level for special purpose machines, particularly with respect to high availability of plant specific spare parts.

The backbone of our enterprise comprises of a dedicated team of experienced designers and engineers. Their knowledge and commitment make it possible for us to do the project engineering and implementation of large complex



installations from first layout to the final handing over of turn key projects for customers.



Conceptual design, project engineering and implementation of complex conveyor solutions

Chemical Industry

The conveying system is often overlooked within the bigger scheme of project engineering of production facilities. It can be said that: **Any system is only as powerful as its weakest link.** With our presence as your partner,

your conveyor system will not be that aforementioned weak link.

Modern production machines need optimum linking. This is valid both for high capacity production lines as well as for the flexibility of product changeover.



Transport in Ex-area



Integration of a fire protection terminal

Food Industry

The Main Aim

- development of result oriented conveyor engineering concepts
- conveyor systems with the state-of-art technology
- planning of new installations and optimization of existing sequence of operations
- economizing optimum material flow solutions
- from conceptual layout to start of production – all from one source

Our Credentials

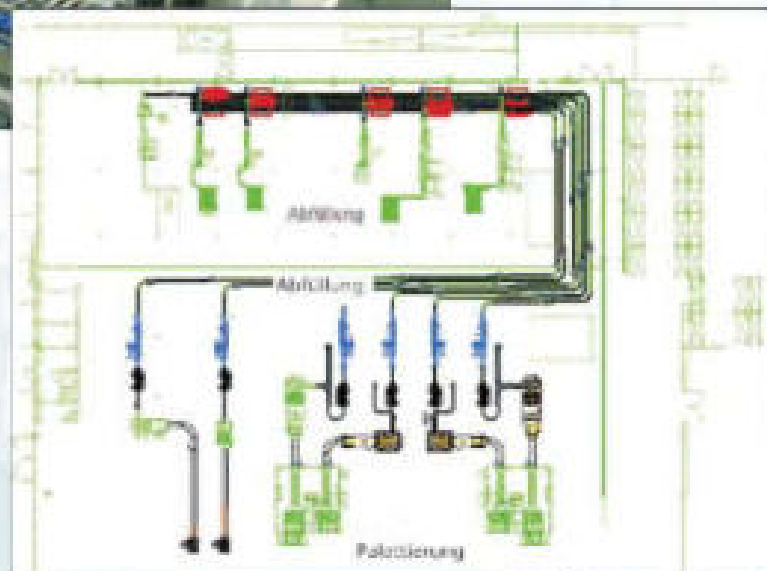
- decades of experience, covering a wide range of different industries
- experienced, highly motivated team of engineers, technicians and mechanics
- modern production facilities with large production base
- control concepts with user friendly graphical solutions and possibility of BDE-interface

Glass Industry

Beverage Industry



Compact conveying system in clean room conditions



CAD system layout

Pharmaceutical Industry

The Flow Chart

I. Conceptual Design & Planning

- competent customer consultancy services by our project engineers
- object specific demand assessment for conveyor capacity calculation
- suggestion and discussions with customer on possible solutions for line design
- automatic synchronization of interfaces with other suppliers

II. Implementation

- modern 3D CAD construction
- short delivery time of equipment from our large manufacturing facility
- quality assurance at all stages of order processing
- installation and commissioning by our experienced service staff

III. After-Sales-Service

- all year availability of specialized mechanics
- a well organized stock and our cutting edge production line ensures reliable supply of spare parts

Cosmetics Industry

Conveyor system with slat-band and plate top chains

Our **conveyor systems** are used for primary material flow of unit loads as well as for interlinking of production machines. For these conveyor systems, straight and curved interleaved **slat-band and plate top chains** can be used. These can be made from plastic, steel and stainless steel. Also we can offer **modular plastic belts**. Depending on the application, different types of conveyor systems are available. All systems are designed in such a way that their individual components are assembled together as a modular unit. If required, directional changing of the conveyor can be easily obtained by rearranging some of the **modular components** with minimal difficulty.



Aluminum Standard System

Please select from our varied equipment portfolio!

Aluminum Standard System

For **long conveying lines**, our aluminum system has proved to be very successful. This system has some very remarkable features like low self-weight and ease of assembly. By using **Gronemeyer aluminum profiles**, **support spans up to 6 meter width** are possible. Inner and outer slots facilitate a "chip-less" assembly. Guide rail brackets, supports and auxiliary items like light barriers and pneumatic stoppers can be mounted easily on the aluminum profile. These can be re-positioned later for fine adjustments using sliding blocks. Because of the clever design, extremely **short final assembly time** is achievable giving considerable savings on this system.

Aluminum Compact System

Utilizing the advantages of our Gronemeyer aluminum profile, which has proved successful for many years, we have developed a simple aluminum compact system for transporting small products in **limited space**.

These characteristics distinguish our modern conveyor system with **modular construction**:

- simple and almost "chip-less" assembly by means of connection plates
- trouble-free fitting of sensors and other auxiliary components in the outer slots
- use of existing components for new and modified conveying layouts.



Aluminum Compact System



Hygienic System

Hygienic System

This system is suitable for **wet operation** or especially for applications with **high hygienic requirements**. This is exclusively built with stainless steel and rustproof components. The open construction **prevents dirt deposits** and facilitates **easy cleaning**.

For dry operations, we also offer the same construction in painted steel design.

Whether it is with gears of fixed speed or with electronic/mechanical variable speed, all variants are available in shaft mounted execution or chain driven. All standard makes can be considered.



Aluminum Standard System

Gronemeyer Side Grip Technology

For space saving special applications, side grip technology from the house of Gronemeyer has proved to be successful for the last many years. It has been successfully used in many different types of industries for careful conveying in vertical direction.

Because of the **soft clamping process** even sensitive products can be conveyed. Drooping out or twisting the material being transported is prevented with **low contact pressure**.

Big products like KEGs, crates, cartons etc. can also be transported by application of a wider gripper chain. For small products (small jars, preforms), our small gripper chain is available.

Gronemeyer side grip conveyors are characterized by outstanding system features:

- extreme product caring material conveying
- almost noiseless transport during continuous material flow
- high conveying capacity (up to 60.000 products/hour)
- robust construction in painted or stainless steel design
- very fast adaptation in case of product change through a central adjustment

Following additional facilities are available:

- running along revolving disk in the curves for wear reduction of chain and wear strips
- automatic tensioning station for gripper chains
- motor driven width adjustment
- autonomous control with accumulation monitoring
- infeed and discharge conveyors



Downward transport of fruit juice-PET-Bottles



Upward/downward transport of work piece carrier

Gronemeyer Gripper Chain

The key to trouble-free operation is the right selection of gripper chain. Based on the ongoing market demands of latest technology products, many different design variants of rubber profile and carriage plate have been developed over the years. Also for extremely demanding applications like in the sugar and the detergent industry, the working life of these chains is very outstanding. Many types of material for the gripper chain are suitable for use in wet application or with applications with high ambient or product temperatures.



Vertical Conveyor

The vertical conveyor systems are used for overcoming the difference in height between production lines. Heavy items with up to 40 kg individual weight and height difference of 12 meters are no problem with Gronemeyer systems, and with this conveying principle, not only bottles or jars, but cans, cartons etc. can also be transported up- and downwards.



Wide gripper chain for heavy packages



Small gripper chain for small-sized products

Segregator

Segregation is done as per specific requirements of application. This is to avoid forwarding of broken glass or other unwanted impurities or for marking/coding the product from below by laser or inject.



Segregator in the glass industry

Gronemeyer Side Grip Technology

Bottle Turner

Customized requirements or legal specifications often call for an **internal cleaning** of new containers of glass or plastic, new PET bottles, cans etc. before filling.

With the Gronemeyer bottle turner, you have the facility of rinsing or blowing-out the **new containers** before filling. In this system, the products can be turned either upwards or downwards (depending on product and infeed height). This flexibility in construction also enables cleaning of the material to be conveyed together with up- or downward transport (e.g. from one floor into the over-lying floor).



Draining residual liquid

Draining Residual Liquid:

Before refilling, a functional safe inspection of multi-path PET bottles is only possible with a low quantity of left-over liquid. Bottles with large left-over liquid can also be drained out by the turning process.



Blowing-out lance

Dry Cleaning:

The Gronemeyer bottle turner can be supplied with or without **blowing-out facility**. For better **removing of dirt deposits**, we additionally offer a pneumatic vibration device. Similarly, a three stage sterile air system is also available, which can be connected to the compressed air net.



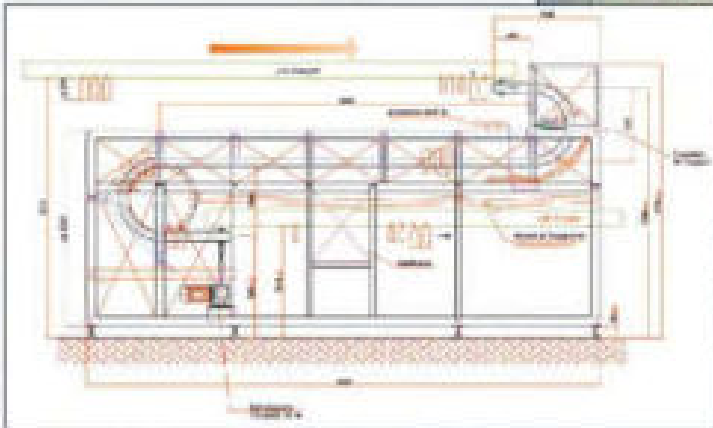
Sterile air filter unit and centralized lubrication system



Rinsing:

Another method of cleaning new containers of glass/plastic and new PET bottles is through our Gronemeyer rinser. With this system, the containers can be flushed-out with the help of water or any other liquid.

Rinser



Rinser with downward movement

Neck Sterilizing

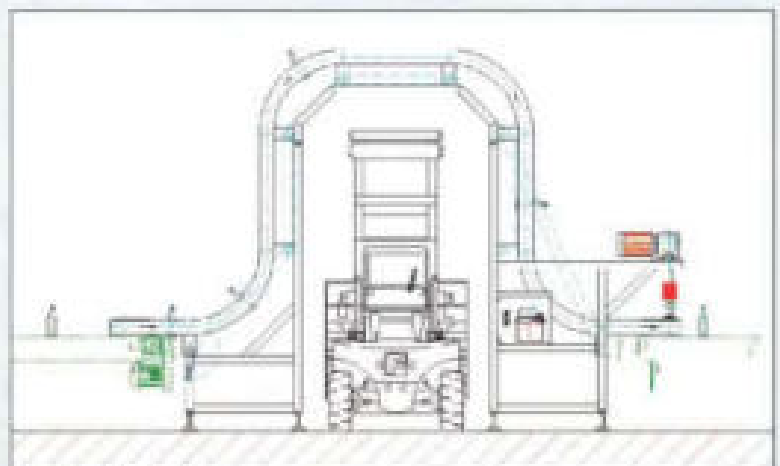
Due to procedural reasons within the beverage production, often moistening of the bottle neck with the product for few seconds becomes necessary. Both in cold and hot filling, our neck sterilizer has proved to be successful. The design adapts itself to the system specific parameters such as conveying capacity and moistening time. Due to the vertical moistening routes, the machine can also be integrated later on in any filling line even within limited space.



Neck sterilizer with revolving disk to reduce wear of chain and wear strips

Roadway Bridge

For accessing individual machines of a filling or packaging line, a bypass of drive path or side paths is necessary. For this purpose, a tailor made solution can also be offered with Gronemeyer side grip technology.



Roadway bridge

Gronemeyer Spiral Flow Systems

With the application of our Gronemeyer spiral flow systems, it is possible to handle products in single or multiple tracks in a very limited space during process operations. If **cooling, fermenting or freezing** is required in continuous material flow, the products pass through an air conditioned chamber. The complete system consists of **spiral system and cold/chilling cell**, which is designed as per specific application and is handed over to the customer on turn key basis.

As per process requirements, product shape and conditions, Gronemeyer offers various specifically designed systems for thermal treatment:



Cooling of bread spread



Cooling of hair wax

I. Heliflex In Line Cooler

This system is especially suitable for single line processing of packed products with width up to 350 mm. The system is mechanically adjusted for a specific ambient temperature. This temperature may lie between $+1^{\circ}\text{C}$ to approx. -80°C . The temperature of out-coming product can be changed by varying the cycle time.



Drying of candies

II. Spiral Flow System

Packed and unpacked products of different size and shape can be driven in this system with single- or multi-line arrangement. Handling of coarse grain materials is also possible. The system is known for its high versatility. **FDA certified chains** up to 1,400 mm width also allow processing of unpacked food. Because of the allowable temperature range of -40°C to $+140^{\circ}\text{C}$, the system can be used for freezing, cooling and fermenting. Apart from turn around time, the ambient temperature can also be adjusted anytime with the help of a menu-based control.



System scheme of spiral flow cooler



Three tower system with over 1200 m chain length



Integrated chain cleaning station

Both systems offer the following advantages:

- continuous product flow through the system
- simple integration into existing production lines
- automatic of the product infeed and discharge
- almost noiseless running with low drive power consumption
- improvement of product quality through continuous and timely processing
- long chain length in minimum space
- scope of supply as a complete system with control and auxiliary facilities
- cooling chamber available in both light weight construction or freezing model with cooling panels
- chilling system with direct evaporation or cooling circuit with refrigerant (e.g. brine)
- low operating cost



Spiral flow system with circulating gallery

Gronemeyer Storage Systems

The experience with filling and packing lines shows that machines can not always run trouble-free or work continuously. The efficiency of the entire line can immediately suffer even due to short disruptions. Storage buffer capacity between machines can provide a remedy to this problem. To ensure that the complete line does not stop due to packaging changes, fault or necessary technical shut-down of production in any individual machine, the products are stored in-between in a buffer storage systems and after rectifying the fault or at the end of shutdown, the production flow automatically restarts.

As per product shape and nature, Gronemeyer offers a wide variety of especially designed systems for intermediate buffering as below:



Stationery table in reverse operation



Stationery table in rotary operation



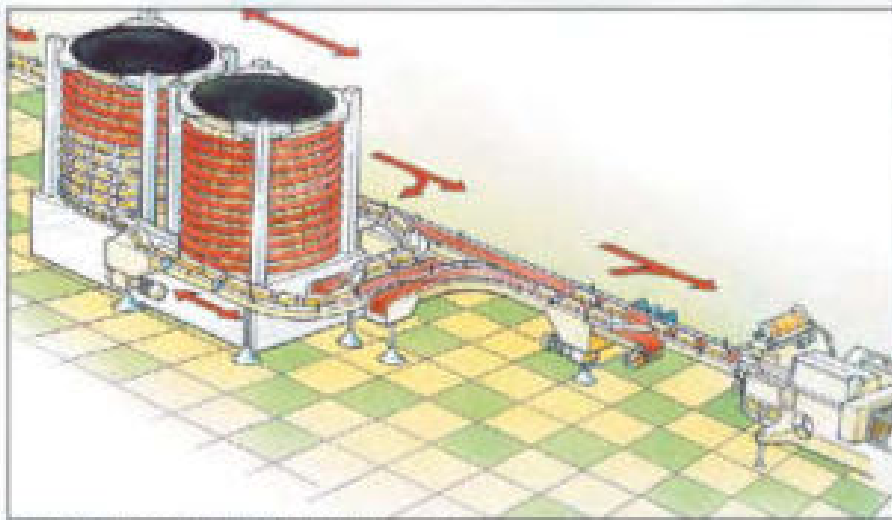
Storage of work piece carriers

I. Stationery Table

These systems are primarily suitable for products with round shape like bottles or cans. The storage is done primarily following the pressure principle.

II. Revolving Buffer

This system is preferably used for rectangular products like coffee-packets, cartons and work piece carriers. The buffering in and discharge are done stroke-wise.



System scheme of Heliflex storage system

III. Heliflex Spiral System

Products of different shapes with height up to 160 mm can be lifted. The storage is done in reverse direction. The system is characterized by its fast response time and a very compact construction.

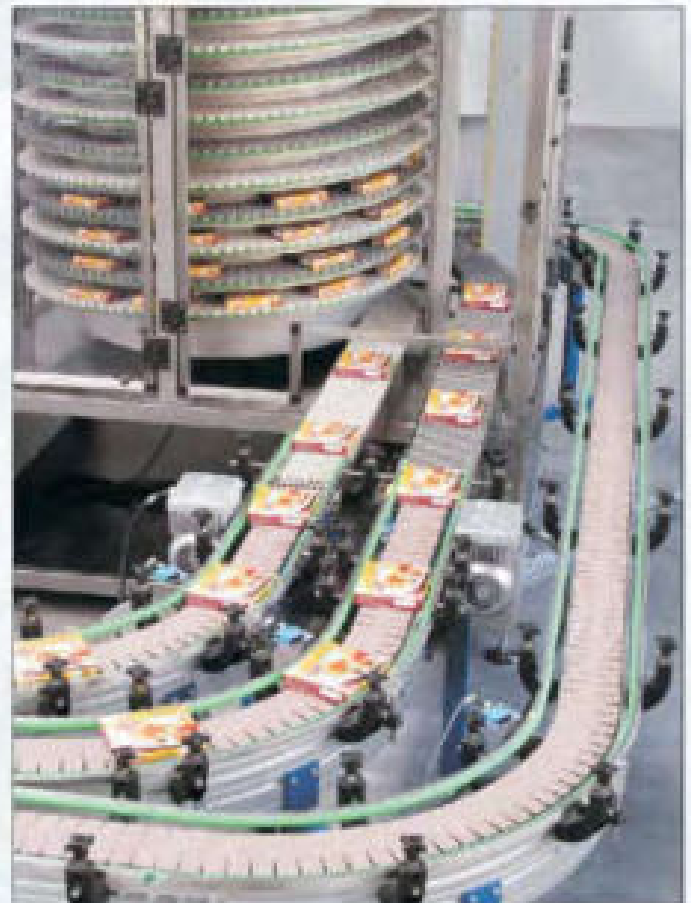
IV. FIFO Spiral Buffer

The system is integrated as a bypass into the main line. This system offers product storage with the first-in / first-out principle with the possibility of handling large capacities. An implementation under deep cold conditions is also possible.



All systems offer the following advantages:

- scope of supply as a complete system with control and auxiliary facilities
- improvement in line efficiency by up to 20%
- large storage capacity in small space
- automatic buffering in and discharge of products
- almost noiseless running
- simple integration into existing production lines
- adaptable to specific requirements by variation of chain length and width



FIFO spiral buffer

GRONEMEYER - Your partner for special requirements

These days, many special requirements emerge from conveyor systems connecting individual production machines. Very rarely it can be managed by standard components, hence our experience of the last forty years can be used. In close co-operation with our suppliers, the optimum conveyor chain is selected for each requirement.

Special conveying tasks as well as individual needs of food handling, with our highly sophisticated machines we will meet your requirements.



Modular belt conveyor in hygienic design



40° incline conveyor for cartons and packages



Elevator for the food industry



90° orientation device



Line divider 1:2



Rotation plate



Motorized switch for uniform distribution on multiple tracks



Modular belt conveyor with rotary device



Roadway bridge Inc. separate connecting conveyor

Control and Automation

Modern production methods require a **high degree of automation**. This automation can only be incorporated mechanically for a specific part. Hence, **flexible conveyor technology** does not come without matching controls. We offer you our experience of various control solutions for chemical, glass, food and pharmaceutical industry.

Therefore, you get the best from us as a complete system with controls from our in-house facility. In line with the requirements, the degree of automation is decided from a simple motor control to frequency controlled motors with programmable memory control up to the remote system control with fieldbus system, **system visualization and remote maintenance**.



Individual customer requirements and specifications as well as relevant regulations are also considered during all stages of development and production. We also manufacture as per application in line with **ATEX guidelines** or for pharmaceutical and food processing industry, as per **GAMP manual for validating** the automated systems.

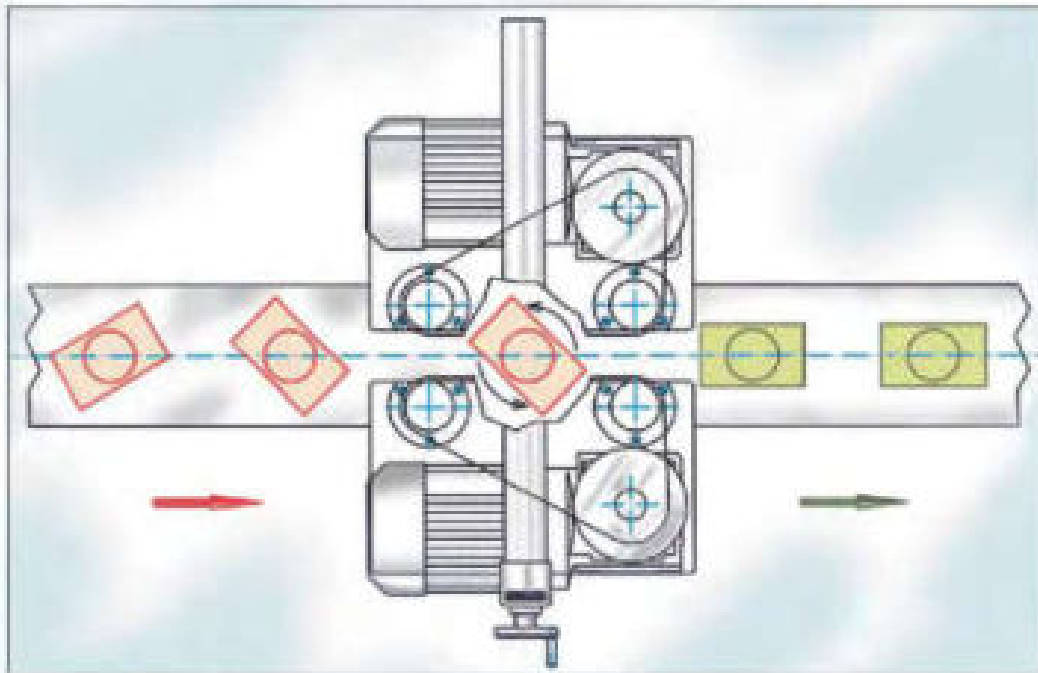
The software is produced using latest programming tools, so that we establish the best possible platform for implementing the automation solution in an **effective and economic manner with quick response time**.

The installation of controls and commissioning of final system are carried out by expert technical staff with most modern tools. Similarly,

quick diagnosis of fault and error messages becomes feasible in the shortest possible time with the following program adaptation, both during installation and commissioning at site and also later on for distant service support.

The **CE-compliant documentation** is characterized by its detailed description and comprehensive approach.

Our service support does not end with the commissioning activity. Remote maintenance support via modem as well as 24 hours, 7 days accessibility for service support is a way of life for us. So we can restrict your loss of production to a minimum and can also help in **reducing overall servicing cost** through remote maintenance.



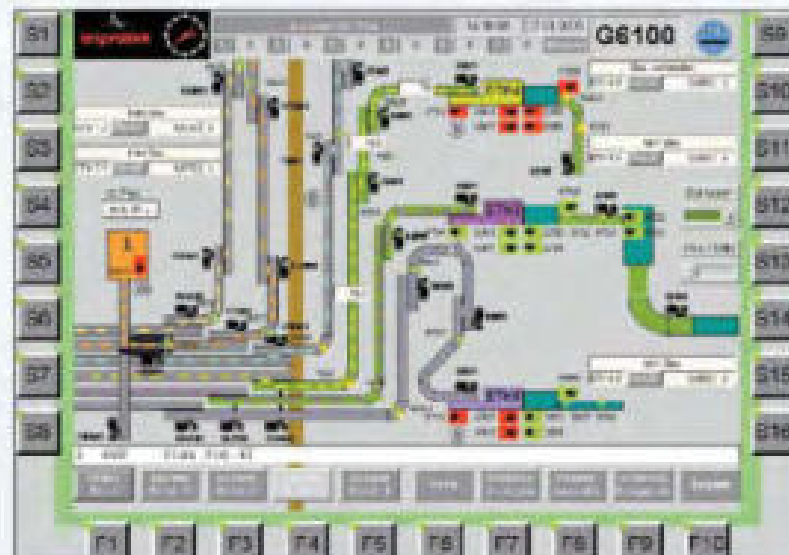
Product identification and adjustment, optionally with camera system

Benefits for you:

- consideration of local conditions and applicable operating methods and regulations
- minimization of downtime through process engineering based conveying method
- detailed system monitoring by our understanding of production conditions through visualization of the processes
- consideration of customer requirements for selection of PLC hardware components
- qualified service personnel
- optimization of response time during fault occurrence with a good service set up and by using modern remote maintenance concepts (24-Hour-Hotline)
- optional database connection to existing systems

PLC Programming

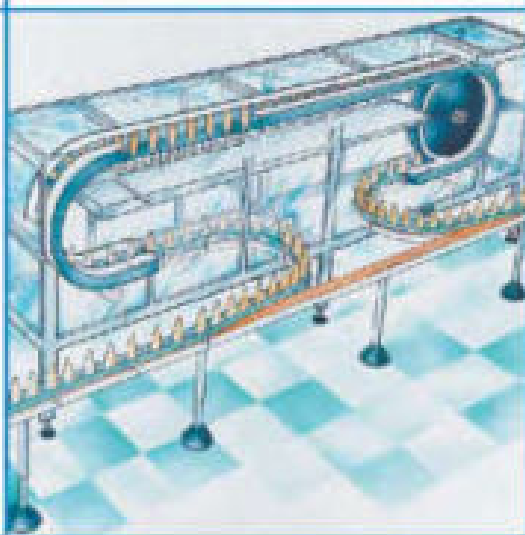
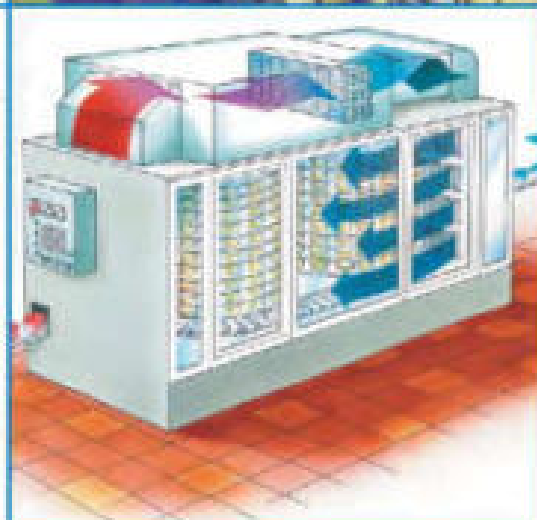
- Siemens LOGO!Soft
- Siemens STEPS
- Siemens STEP7
- Siemens ProTool/Pro
- Siemens WinCC flexible
- Modicon Modsoft
- Mitsubishi GX IEC
- Telemecanique PI7
- Easy-Soft, Sucosoft S40
- Allen Bradley



PC-visualisation of car transport

CONVEYOR SYSTEMS covering several industries:

- Food
- Beverage
- Glass
- Pharmaceuticals
- Cosmetics
- Chemicals



Gronemeyer

FÖRDERTECHNIK

Gronemeyer Maschinenfabrik GmbH & Co.
P.O. Box 100253 D-37652 Hötter Germany
Rohrweg 31 D-37671 Hötter Germany
Phone +49 (0)5271 9756-0
Fax +49 (0)5271 33866
e-mail: info@gronemeyer.org
<http://www.gronemeyer.org>

From the start of mutual planning through final commissioning and thereafter, the experience of our team of engineers and technicians is always at your disposal.

