

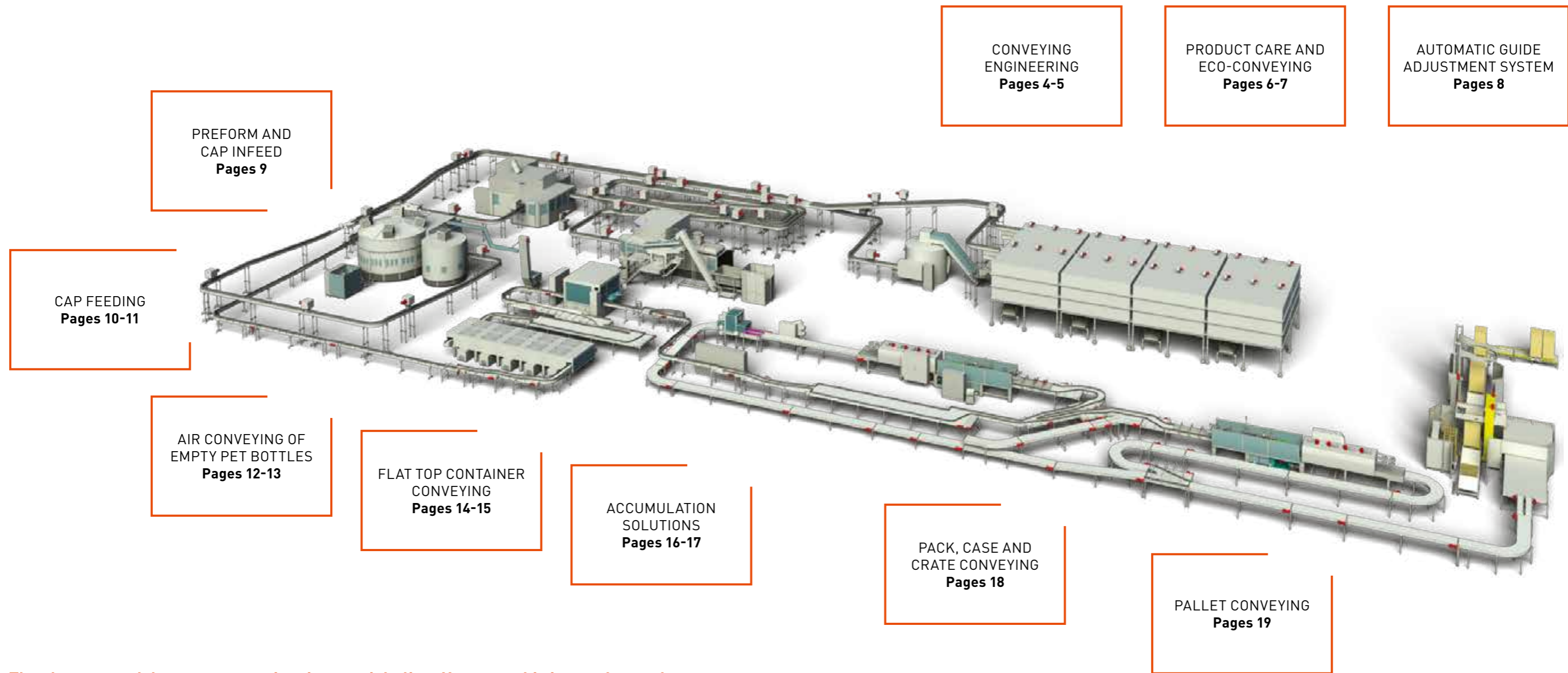
CONVEYING SOLUTIONS
**FROM SYSTEMS
TO EQUIPMENT**



*Performance
through
Understanding*



INDUSTRIAL GEOMETRY



The shortest path between two points is a straight line. However, this is not always the most rational or the best possibility under real industrial conditions.

Your empty container leaves a machine, heads straight for 20 meters, takes a sharp 90° turn, is lifted up 3 meters, turns off at a switching point and passes through a wall, before plunging down into the line.

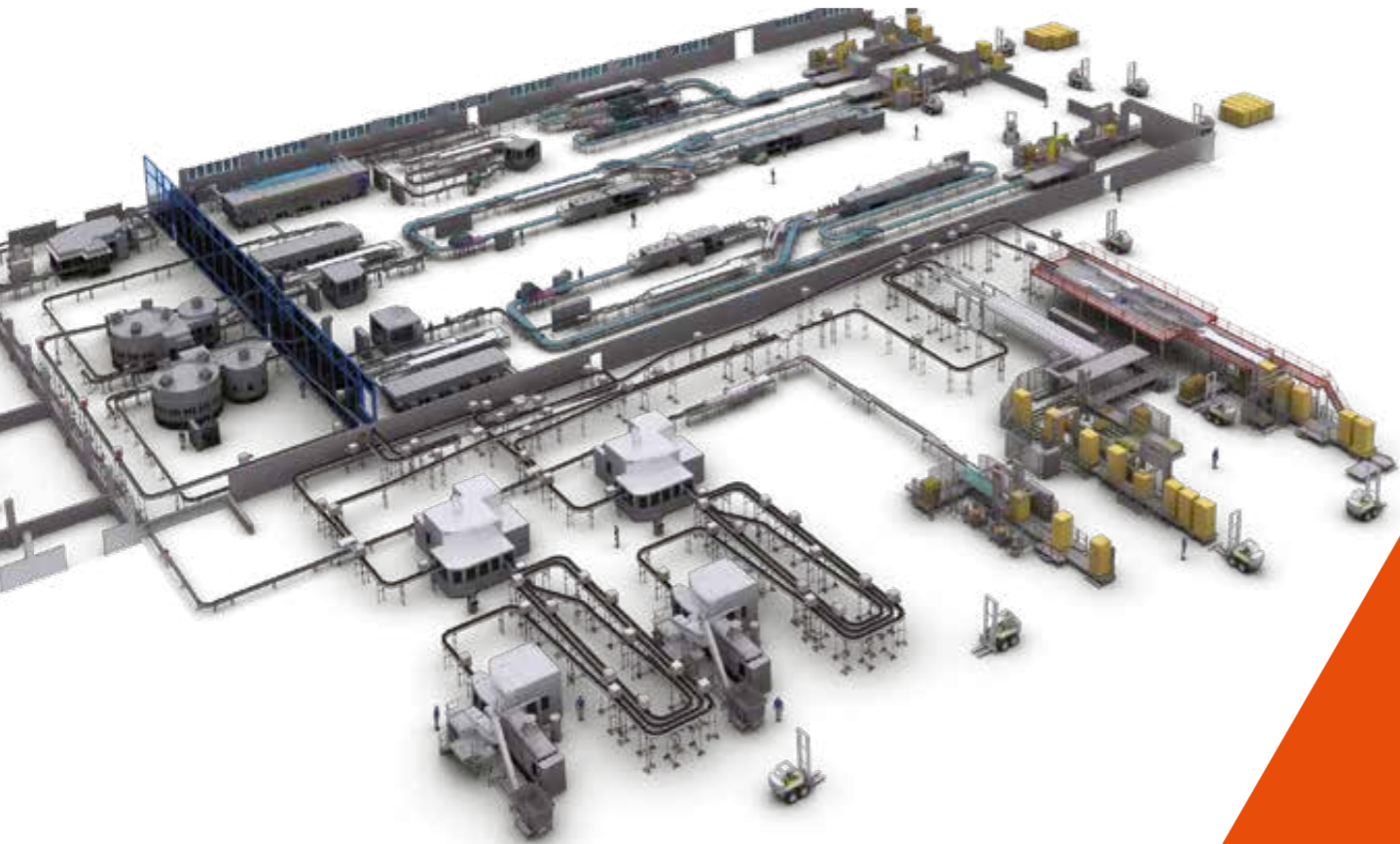
Before it reaches the end of the line – filled, capped, labeled, controlled, overpacked and palletized – your product will have covered several times the real distance between all the machines.

The few minutes necessary for the container to make this journey will have been used, among other things, to separate container production or container supply from the filling area, to save ground space, to isolate a few samples for checks, to prepare product flows for machine infeed, to offer the best ergonomics to the line operators...

Above all, this time will have contributed to guarantee the output and thus the profitability of your production. For no machine works independently from the others, it is the main purpose of the regulation system to ensure the continuous running and the overall performance of the line.

Thereby, because industrial geometry knows no rules other than performance, Sidel conveying solutions cover all the necessary functions for your layout projects and combine the best in equipment ergonomics and conveying engineering for optimum line control.

UNDERSTAND YOUR INDUSTRIAL PROJECT



Sidel conveying engineering make your production strategies a reality thanks to an overall understanding of your goals and of your packaging line. The equation that determines your performance involves numerous variables. In a word, it is specific to you. Your production equipment depends on the characteristics of your products, your location, your market and even your competitors. In short: your production strategy.

Do you need to adapt to market evolutions? To make fast responses to demand fluctuations? To reconcile high speeds with high productivity? To manage the complexity of increasingly diverse production patterns or simply to increase line efficiency and improve your productivity? Above all, we strive to understand this industrial project.

Managing product diversity

Do you have to manage a wide range of different products, formats and container types each day?

For more complex production, we design solutions that favour flexibility for format changeover, ergonomics and smooth flow management.



Better regulation for better performance

Do you need accumulation to secure the good running of your line and to increase its efficiency?

Accumulation time and performance are precisely calculated according to your production characteristics. Sidel's control system adapts conveying speeds to your container and line properties, for fluid, smooth conveying.



Modifying or expanding your line

Are you planning to modify some parts of your line? To add new functions and the corresponding equipment to it? To update the existing line?

To be able to evolve according to your line, Sidel conveyors are designed with a modular approach: each element connects quickly to existing interfaces and is easily integrated into the architecture of the PLC network centralizing all parameters.



TRANSPORT YOUR PRODUCTS

The challenge of your production is twofold: guarantee the integrity and quality of your products, maximize the productivity and output of your production at the end of your line. It is the commitment of Sidel's conveying solutions.

Product care

Your container allows you to get your product to your customers, wherever they may be, but it also enables you to differentiate your product from its competitors, to showcase it and to enhance your brand image.

At a time of packaging material reductions and facing demanding consumers, to protect your container from physical damage and from contamination is particularly important.

This can be achieved through the securing of a flowing and dynamic conveying preventing any damaging pressure or friction on the container or the label. For multi-format production, it also means protecting the integrity of the packaging while providing flexibility to packaging diversity.

A mechatronic architecture

This is why Sidel conveying solutions are built upon a mechatronic architecture giving the priority to simple and efficient mechanical principles combined with the best in electronics and computer networks. As a result: these systems are both simple to use and able to convey and regulate diverse product flows without time-consuming or complex operator interventions.



ECO-CONVEYING

ECO-DESIGN APPLIED TO CONVEYING

To respond to environmental and economic concerns, Sidel is applying ecodesign principles to its conveyors with two main focuses: optimizing energy and fluid consumption as well as designing equipment that require fewer parts and less material for construction and maintenance without altering performance.

SAVINGS ON ENERGY AND FLUIDS

Power consumption

- MOVIGEAR® drive as a standard feature (developed by SEW-USOCOME in collaboration with Sidel)
 - Overall decrease in power consumption by 24% thanks to higher yield

Air consumption

- Air conveying: dry lubrication of the under neck guide
 - Large decrease in variator frequency thanks to lower friction coefficient
 - Significant drop in energy consumption and longer filter life

- Cap feeder: "Low Consumption" version for cap and crown ejection

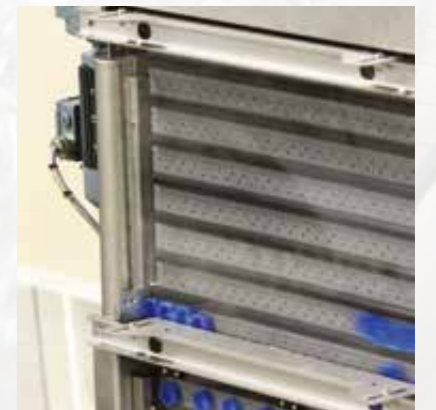
- Power savings of 70%, from 7.36 down to 2.2 kWh, by replacing compressed air with a fan

Water consumption

- "Dry" lubrication of chains for mechanical conveying
 - More than 80% decrease in water volume used with respect to wet lubrication

SAVINGS ON MATERIALS

- Sidel accumulation solutions: simple principles, robust design
 - Fewer component references, particularly for the drive
 - Compactness: optimal usage of floor space for accumulation
 - Less maintenance: fewer spare parts





AUTOMATIC GUIDE ADJUSTMENT SYSTEM

QUICK, UNLIMITED FORMAT CHANGEOVERS

Automatic adjustment system for side guides applies to all conveying solutions that require flexibility and rapidity for format changeovers: air conveyors, flat top container conveyors and pack conveyors.

Operation

A gearbox transmits the appropriate movement to the side guides, via a flexible, continuous drive shaft that follows the conveyor layout: the guides are positioned by translation thanks to a worm gear.

Ergonomics

- Unlimited number of formats on a single conveyor
- Simple, quick pre-setting for different formats
- Access to the desired format from the control panel
- Simple mechanical system without operator handling or pneumatic cylinder

Durability

- Low maintenance: limited number of components
- Limited drive system: only one drive, up to 30 meters, on each side
- Robust design and excellent sealing

PREFORM AND CAP INFEEED

The productivity of your line starts with the preform and cap infeed. Sidel's bulk conveyors preserve the quality of your preforms and caps and help you optimize your line's layout upstream from the blow molder and filler.

Layout ergonomics

- Remote infeed and decrease in layout constraints around the blow molder and filler
- Centralization of preform and cap consumable flows
- Ease of layout thanks to a horizontal design

Production quality

- Smooth conveying of preforms and caps to preserve their integrity
- Variable infeed speeds for production start-up and format changeovers
- Convex PET hood for protection from external dust

Functionality

- Communication via Ethernet network with the blow molder
- Simple drive or piloted by PLC and frequency variators
- Resistant, stainless steel construction

CAP AND CROWN FEEDING

Capping is critical because it is the point at which the container, contents and closure come together. In fact, product quality and overall production performance can hinge on choosing the right closure infeed solution. Storage, elevation, orientation and high speed feeding of the capper: Sidel cap and crown feeders combine the 4 functions with optimum reliability thanks to its simple orientation principle based on gravity (Aidlin patent).

Performance and productivity

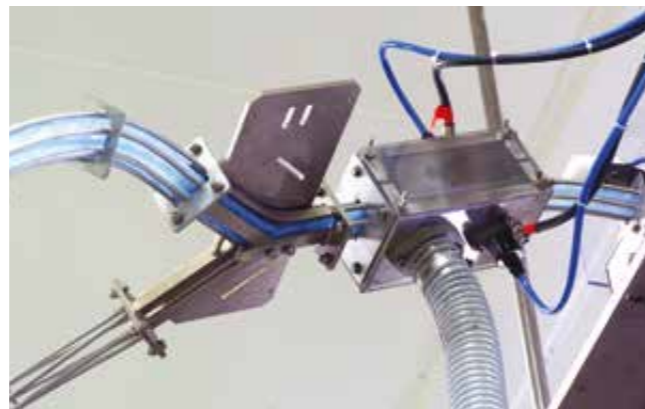
- Easy integration: low space requirement, Flat Top air conveyor enabling complex trajectories and bypassing of obstacles, with no limits on distance
- Easy use: tool-free adjustment of the speed bump, hopper replenishment at chest height
- Operational autonomy: large size hopper available in various formats, low-level and blockage detection system in the hopper and ejector, pre-feeding solutions
- Quality control: ejection systems for caps that are missing the tamperproof ring and for upside-down closures

Flexibility

- Short production changeover times thanks to an automatic emptying system
- Infeed of standard-neck and lightweight caps on the same belt, without any adjustments
- Dual-belt feeder: format changeover via a simple switch in less than 5 minutes
- Automatic, telescopic chute for intervention-free adaptation to all bottle formats and for greater reliability of adjustments

Protected hygiene

- Possibility of moving closure infeed outside the filling chamber
- Closure elevation and orientation without creating any dust, closure ejection via filtered air (compressed air or fan)
- Dust removal chamber, combining air ionization and particle suction at the capper outfeed
- Secure front access door for hopper maintenance and cleaning
- Total accessibility and use of durable materials (PET, stainless steel) to simplify cleaning
- High Hygiene options: positive pressure in hopper, 0.01 micron filtration at ejection, HEPA filtration of Flat Top air columns, raised hopper and under-chassis protection.



RANGE

Pre-feeding

- Box discharge system
- Trickle feeder

Storage and feeding

- Low or high speed feeding
- Cap and crown feeding
- Dual belt cap and/or crown feeding

Conveying

- Gravity chute
- Telescopic chute
- Flat top air conveyor

Cleanliness

- Dust removal chamber at filler infeed

FOR EMPTY PET BOTTLES

Your bottle is all the more sensitive and fragile as it is empty, before the filler. Transporting these few grams as carefully and as efficiently as possible up to the filler means ensuring air purity and precisely controlling air flow rate.

Flexibility

- Transport of a great diversity of shapes and sizes of empty PET container, even at high speed
- Easy integration in any existing building or line: wide range of plenums, curves, up and downslopes
- Fast changeover: manual or automatic adjustment of guide and body rails, preset formats accessible through a use-friendly control panel
- Management of complex lines: high speed switch gates for distribution and combining of up to 3 lanes

Hygiene

- Air quality control: filtration levels from pre-filtration to absolute filtration (99.99% at 0.5 µm)
- Airtightness control: airtight plenum-to-plenum connecting flange, side or full cowling, air overpressure tunnels
- Full cleanability: washable design and materials, demountability and accessibility to all conveyor elements

Performance

- Flowing conveying: fans automatically adjust to container characteristics, machine speeds and to conveyor occupation rate thanks to dedicated frequency inverters
- Dry lubrication for optimum friction coefficient
- Ergonomics: accessibility to wire ways, grooved aluminum profile for installation of peripherals, easy clip-and-slide of neck rails for quick replacement



RANGE

Transport

- Straight plenums from 300 to 3,000 mm, curves from 15 to 90°, up and downslopes from 5 to 15°
- Floor, aerial or wall support
- Bottle train formation
- Accumulation
- Bottle ejection for downstream machine protection, sampling or silo feeding

Distribution and combining

- Switch gates, up to 3 lanes

Machine interfaces

- Adjustable height of bottle release on table top conveyor for multi-formats
- Blower's outfeed for quick changeovers

CONTAINER CONVEYING

Because the output of your line greatly depends on the conveying systems, Sidel conveyors are designed around a modular mechatronic approach ensuring their reliability and adaptability to production changes. Sidel conveyors handle a wide range of container shapes and formats in different configurations: PET or glass bottles, metal cans, beverage cartons.

Easy line integration

- Simple wiring to existing interfaces thanks to hybrid cabling
- Compliance with most common technical standards, machine specifications and line networks
- Easy integration to automation architecture centralizing line parameters

Product care

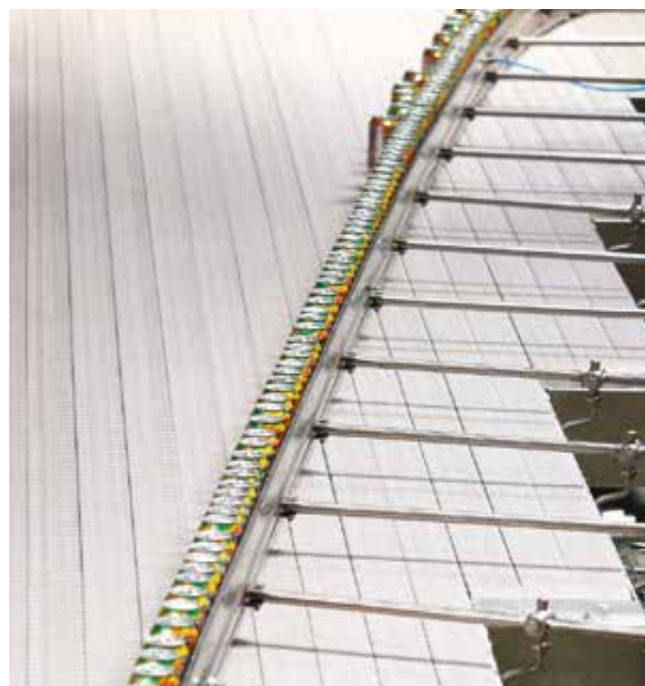
- Flowing conveying preventing pressure on the products and obstructions on the line
- Conveying parameters adapted to the characteristics of the container to convey
- Dry or wet lubrication for a smooth conveying
- Ultrasonic sensor improving line reliability compared to traditional technologies

Flexibility

- Fast and easy format changeovers thanks to preset control programs and pre-programmed intuitive operator panel
- Automatic adjustment of guiding system to bottle formats in lanes
- Multi-format mechanical design and functional drive design enabling fast format change with minimum settings

Total productivity maintenance (TPM)

- Sturdy design and materials (stainless steel)
- Standardized drives, chains, pneumatics and computer elements for easy maintenance
- Easy parts management and supply: mechanical wear parts available by the biggest manufacturers improving
- Simplification and reduction of automation equipment (control cabinets, wiring, captors, actuators) thanks to decentralized and modular mechatronic architecture and hybrid cabling



RANGE

Transport

- Automatic guidance in lanes
- Pressure or pressureless dividing

Machine infeed

- Pressure or pressureless combining
- Dispatching and train formation
- Lining systems with automatic format changeovers

Machine outfeed

- Pressureless distribution

REGULATE YOUR FLOWS

Accumulation is at the heart of line regulation: it adjusts the operating speed of the machines to adapt it to production needs and compensates for machine shutdown to ensure continuous flow of products. This is why reliability and responsiveness are the key words for Sidel accumulation systems.

Simple and efficient

The reliability of Sidel accumulation systems is due, first of all, to the simplicity of their patented design. The principle for their design is based on traditional conveyors, whether mass or single file, to which the accumulation function is added.

This results in flexible, versatile solutions that can be adapted quickly to format changeovers and different production needs.

Open, fully accessible and compact, Sidel accumulation solutions are easily integrated in any type of line, either new or existing. In terms of footprint, they offer the maximum use of the effective space for accumulation.

All Sidel accumulation solutions are also designed around dynamic accumulation principles: they guarantee the absence of pressure and ensure First In, First Out (FIFO) management of product flows, which is essential for good traceability.

Greater responsiveness

The responsiveness of accumulation is first based on the use of the best sensor technologies (ultrasonic and telemetric) for precise detection of upstream flows, while downstream, the use of a mechatronic drive system (Movigear™) enables quick, smooth variation of conveyor speeds.

Between machines, it's all a matter of smart management! The modular design of the Sidel PLC, which processes input and translates it into orders for the conveyors and machines, enables precise, optimal management of flows between two machines ensuring excellent overall performance.

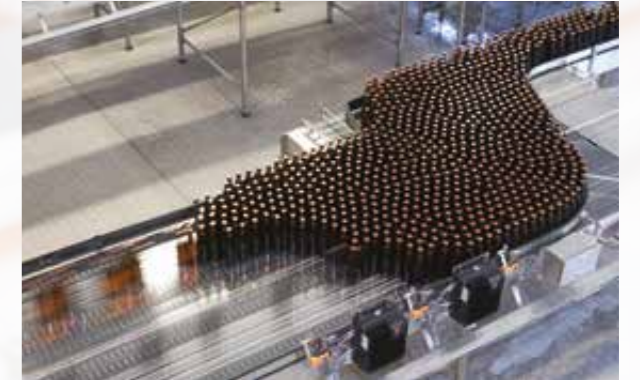
Finally, the modularity of Sidel accumulation tables and their various possible configurations offer a great deal of flexibility for adapting them to any type of production.

GEBO AQ-MAX

The Sidel standard

The products move across the table and are divided laterally, at the end of the table, by a simple thrust between them.

- Package versatility: plastic, glass and metal, in varied shapes and sizes
- Respect for the product: low-pressure flow
- Compactness: up to 33% less space used compared with traditional accumulation systems
- Ergonomics: ease of upkeep and maintenance



GEBO AQ-HC (HIGH CAPACITY)

New perspectives for high-speed lines

Its patented accumulation principle combines the splitting of the table into two opposing flows with the use of a simple, curved mobile guide.

- Maximum accumulation potential: use of all infeed chains for accumulation
- Effective surface occupancy rate: 100%
- 30% increase in accumulation capacity
- Increased responsiveness: thanks to a longer table size and a wider table infeed, the AQ-HC immediately adapts to large variations in production flows and can easily absorb large quantities of product at a Combi outlet, for example



GEBO AQ-FILE

A new solution for single-file accumulation

Designed on the same principle as a standard singlefile conveyor, Gebo AQ-File is composed of a chain that winds around a wheel mounted on a mobile carriage. Accumulation is done by varying the length of the accumulation chain.

- Universality: full or empty containers, regardless of the material used or their shape, particularly those that are not suitable for mass conveying
- Optimal accessibility at chest height for all components
- Respect for container orientation
- Versatility: format changeovers can be handled with minimal adjustments
- Modularity: variable capacity and speed



SECONDARY PACKAGING CONVEYING

The overpackaging of your products is as important as their packaging. It allows palletizing, eases the handling of your products through the distribution network and helps differentiate your products on supermarket shelves. This is why Sidel pack, case and crate conveyors are designed to manage continuous flow of products and protect the aspect of overpackaging while adapting to the diversity in secondary packaging.

Product care

- Smooth and flowing conveying ensuring low pressure and friction, pressureless dynamic accumulation principles
- Preservation of pack aspect and line continuous running thanks to fast automatic conveyor discharge and dynamic interfaces by means of motorized rollers
- Swan-neck inclines and declines to avoid product and chain damage

Performance

- Transport of every kind of overpacked goods: full or empty cases, cardboard boxes, crates, tray, hi-cone and shrink wrapped multipacks
- Fast and easy format changes with minimum settings thanks to multi-format mechanical design and preset control programs
- Compact conveying concept thanks to modular belt (Sidel patent) enabling 180° curves with short radius of curvature

Total productivity maintenance (TPM)

- Open structure for easy maintenance, accessibility to wear parts
- Durability and high resistance to abrasion: stainless steel conveyor with PBF axis (Polybutylène Téréphthalate)
- Easy clip and slide of guiderails for simple tool-less maintenance replacement
- Standardized drives, chains, pneumatics and computer elements for easy maintenance



RANGE

Transport and accumulation

- Curves, inclines and declines
- Magneroll rollers or lbp (low back pressure) accumulation

Orientation

- Turners
- Crate diverters
- Crate sorting systems

PALLET HANDLING

Because the reliability and the productivity of your workshop are essential to efficient logistics, the complete range of Sidel pallet handling equipment, together with Sidel know-how in end-of-line engineering, make it possible to build customized solutions adapted to both your product and installation. Sidel plant layout studies focus on the ergonomics of your workshop and floor space optimization.

Optimized mechanical design

- Simple all-purpose design enabling use in various industries and adaptation to any change in production requirements
- Materials and mechanical design adapted to production constraints: galvanized or stainless steel welded structure
- Integrated cabling
- Silent drive
- Even pallet motion due to longitudinal off-set of the central chain gap from gaps of the side chains
- Reduced floor space

Total productivity maintenance (TPM)

- Easy accessibility to all wear parts
- Quick dismantling of the motor in lateral position
- Quick replacement of the return gears without screw
- Individual tightness of the chains through a single screw



RANGE

Transport

- Chain conveyors
- Free or motorized roller conveyors
- Modular belt conveyors

Orientation

- Transfer tables
- Rotary tables
- Repartition tables
- Shuttles

Storage

- Elevators
- Consolidation tables
- Stacking tables
- Empty pallet magazines

Sidel is a leading provider of equipment and services solutions for packaging beverage, food, home and personal care products in PET, can, glass and other materials.

With over 40,000 machines installed in more than 190 countries, we have nearly 170 years of proven experience, with a strong focus on the factory of tomorrow with advanced systems, line engineering and innovation. Our 5,500+ employees worldwide are passionate about providing solutions that fulfil customer needs and boost the **performance** of their lines, products and businesses.

Delivering this level of performance requires that we stay flexible. We continuously ensure we **understand** our customers' changing challenges and commit to meeting their unique performance and sustainability goals. We do this through dialogue and by understanding the needs of their markets, production and value chains. In turn, we apply our solid technical knowledge and smart data analytics to ensure lifetime productivity reaches its full potential.

We call it **Performance through Understanding**.

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