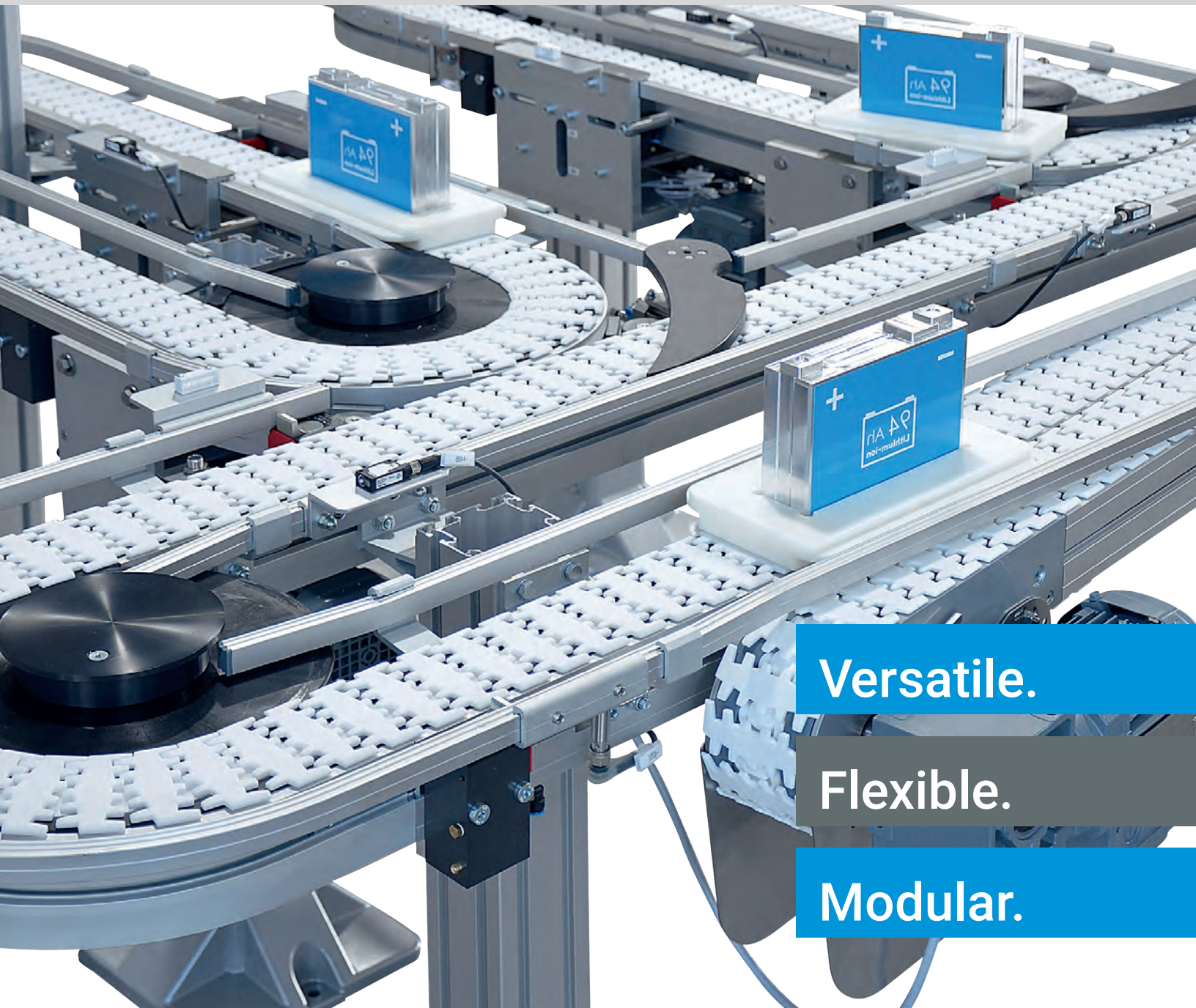


Flat Top Chain Conveyor Systems



Versatile.

Flexible.

Modular.



Introduction to mk

mk North America, Inc. is a member of the mk Technology Group and a leading worldwide manufacturer of aluminum conveyors, pallet-handling systems, stainless steel conveyors, and extruded aluminum framing.

Unsurpassed variety, maximum flexibility and easy integration are reasons mk has become the supplier of choice for machine builders, system integrators and manufacturing companies around the globe.

Since 1988 mk North America has been providing diverse industrial know-how, superb quality, constant innovation and application engineering excellence. mk North America offers you the perfect solution for any application.

better products. better solutions.

At mk North America we believe in offering not only better products, but also better solutions. We offer the most extensive product line in the industry; featuring more than 30 different types of conveyors. This allows us to partner with you to provide just the right solution for your needs.

Our broad offering and years of experience in material handling allows us to provide the best equipment for your individual needs. Our innovative conveying, both standard and custom, has proven itself in the automotive, manufacturing, machine builder, electronics, consumer goods, and printing industries, to name a few.

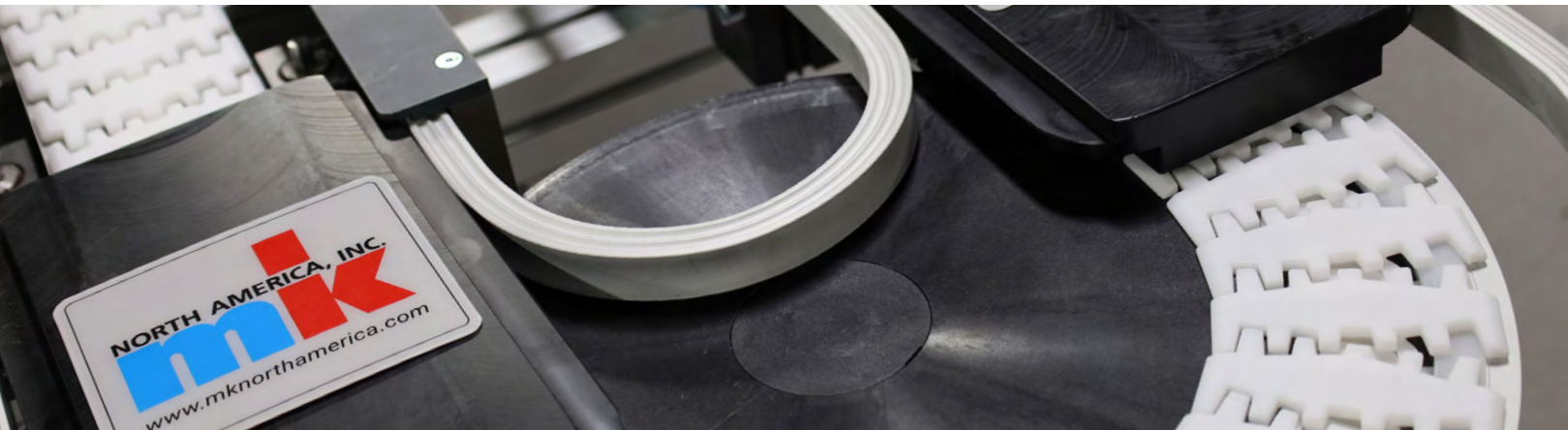
When ordering our conveyors you will experience firsthand the benefits of our innovative designs, competitive pricing and exceptional customer service.

At mk we are dedicated to providing you better products and better solutions.

The mk Advantage

- ✓ Robust construction and high quality components decrease downtime and increase productivity
- ✓ Modular design reduces engineering costs and lead-times
- ✓ Technical application assistance
- ✓ Competitive pricing
- ✓ Innovative designs
- ✓ Custom solutions

The mk North America Difference



Support

At mk North America we believe in supporting our customers from the initial inquiry through the delivery of their system and beyond. We have a dedicated sales and engineering staff to manage your project. All orders include detailed 3D and 2D models for your review and approval. mk assembles and tests all material-handling systems prior to shipping. mk also offers FAT, start up and installation assistance and as well as all replacement and spare parts.

Customizations

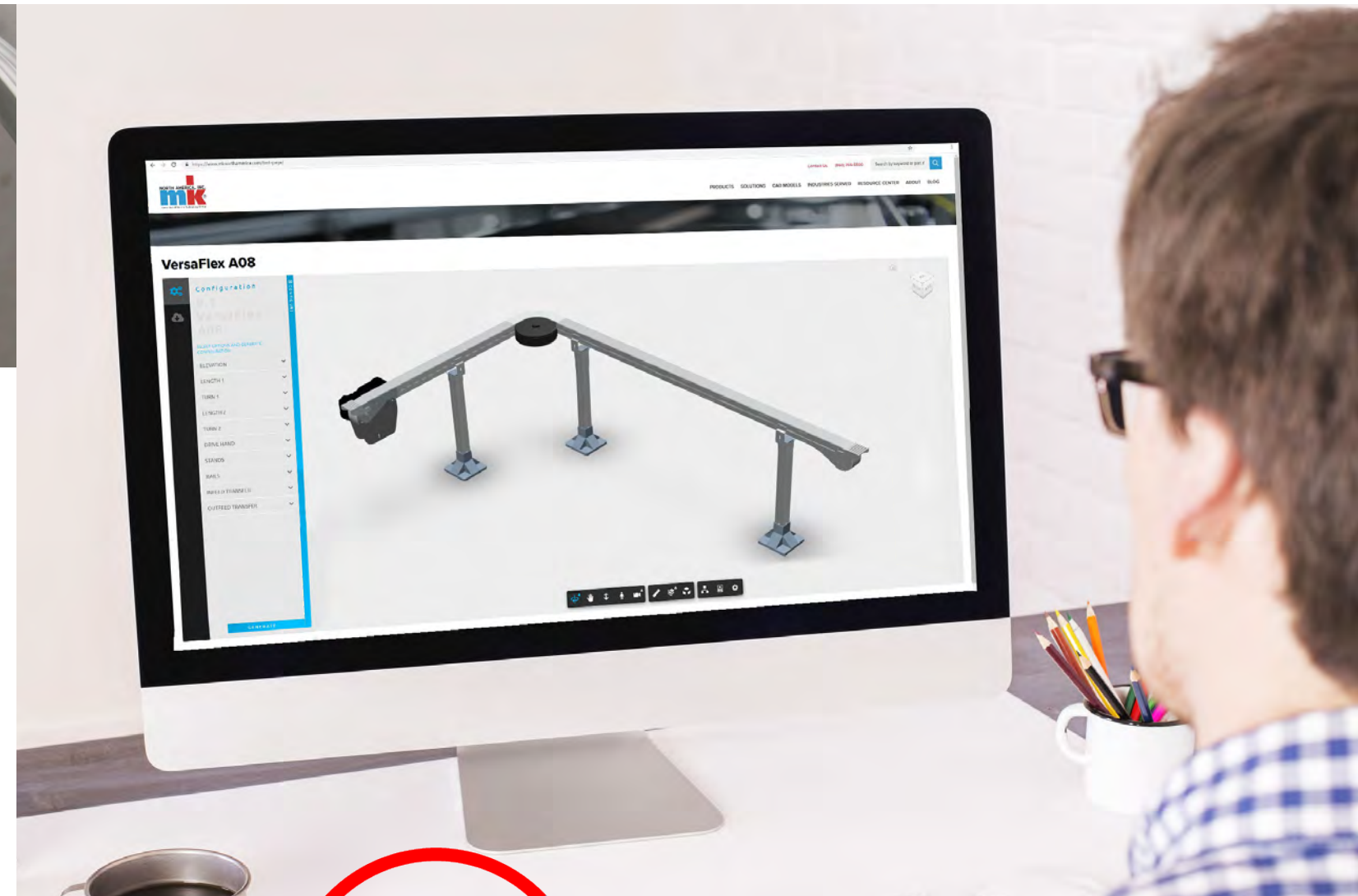
mk North America believes in offering not only a better product, but also a better solution. We understand how the performance of your production line affects your business. Regardless of what makes your material handling application unique – temperature, environmental concerns, handling requirements, or space constraints – mk can provide a custom solution that meets your needs and keeps your business moving.

Advantages

- ✓ **Easy installation:** All mk products are assembled and tested prior to shipping
- ✓ **Easy integration:** All mk products work together and are fully compatible
- ✓ **Design without compromise:** mk offers more products and flexibility than anyone else
- ✓ **Cost-effective:** Save time and money by using standard mk products to build custom solutions
- ✓ **High quality components:** Reduce operating expenses and increase productivity
- ✓ **Experience:** Providing customers with functional and cost-effective solutions since 1988
- ✓ **Engineering support:** Full technical and design assistance before, during and after the sale

**Find your local mk representative at
www.mknorthamerica.com/sales-and-support**

Online Conveyor Modeling



CAD360!

Quickly and Easily Configure and Download CAD Models

- ✓ A wide range of conveyor platforms are available
- ✓ Customize conveyor lengths and widths, drive locations, stand type and side rails
- ✓ Update the conveyor model instantly
- ✓ A wide variety of download options including: 3D DWF, STP, 2D DWG, and PDF files
- ✓ Usable on any device connected to the Internet

www.mkcad360.com

VersaFlex – Versatile & Modular Conveyors



Introduction to VersaFlex

The versatile and flexible flat top chain conveyor system VersaFlex features a modular design. The standardized modules and components make it simple and cost effective to integrate the system into any production process, as well as to adapt and expand it.

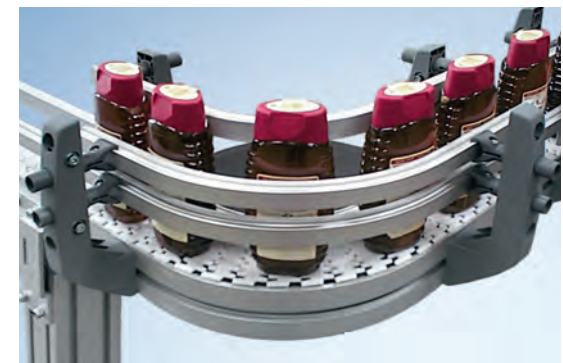
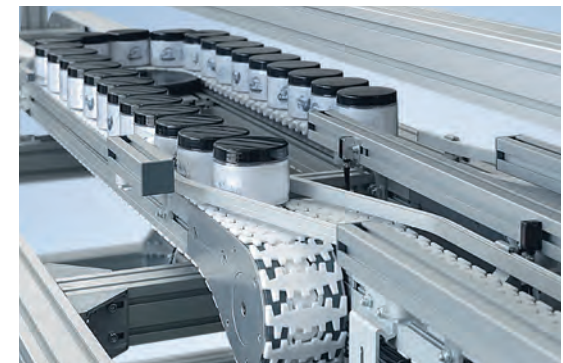
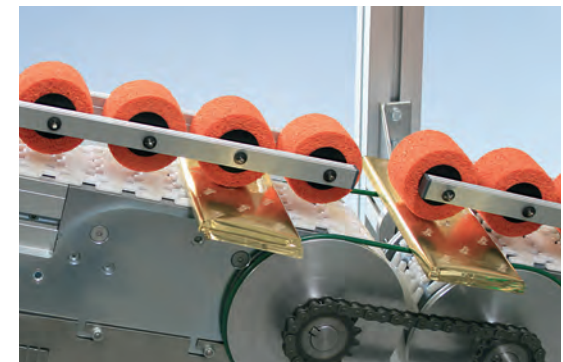
VersaFlex is a conveyor system that grows with your requirements. Moreover, it is compatible with systems that are currently available on the market.

The single-track design and curve radii starting at 150 mm allow complex track designs within a three dimensional space. The conveyor can operate at speeds up to 165 fpm and system lengths up to 40 m with just one drive.

VersaFlex has been used successfully for years in various industries and applications.

Benefits of VersaFlex

- ✓ Suitable for all industries
- ✓ Saves energy and space
- ✓ Compatible with existing systems
- ✓ Simple and fast configuration
- ✓ User friendly and low maintenance
- ✓ Modular system of standard components
- ✓ Enables cost-effective solutions for complex layouts
- ✓ It can quickly adapt to new production or environmental conditions
- ✓ Accessories, stands and side rails can be attached to conveyor's t-slot
- ✓ Side-flexing plastic chain allows for horizontal turns and elevation changes within a single continuous run

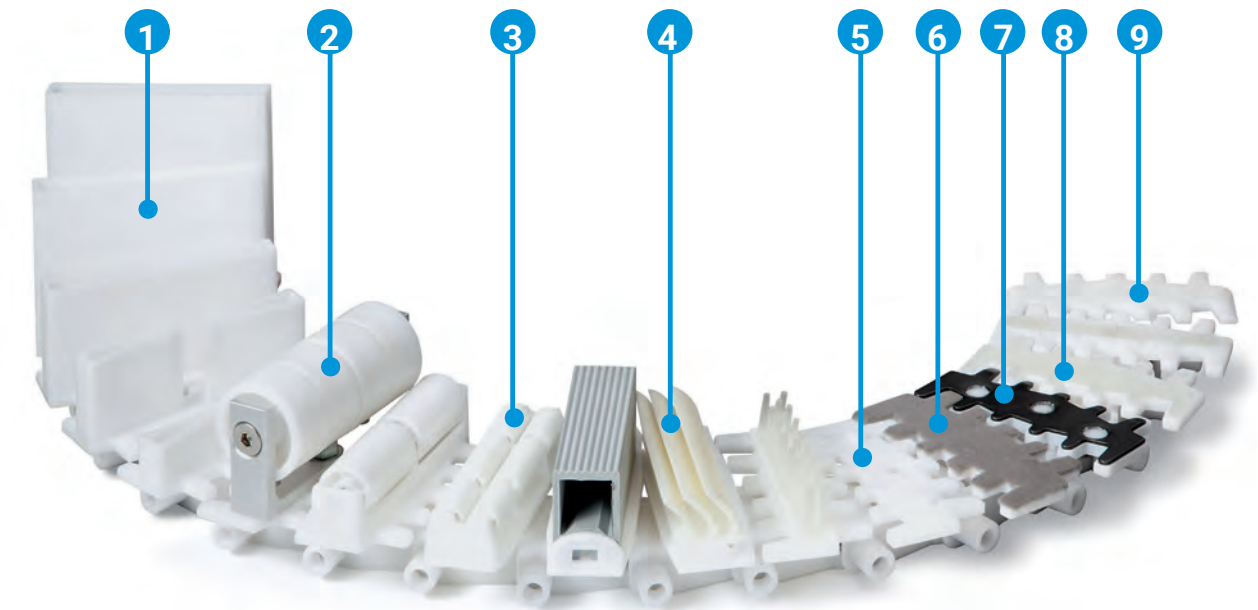


Overview of Systems

System	A06	A08	A10	A17	A29
Conveyor					
Frame width (mm)	65	85	105	182	300
Frame height including chain (mm)	73	85	86	95	
Maximum total load (lbs.)	330	440			
Maximum conveyor length (m)	40	30			
Maximum conveyor speed (fpm)	165				
Chain					
Chain width (mm)	63	83	103	175	295
Chain pitch (mm)	25.4	33.5			
Chain tensile force (N)	500	1,250			
Product					
Product width (mm)	15-140	20-200	25-300	70-400	
Maximum product weight (lbs.) Horizontal conveying	22	33	44	33	
Maximum product weight (lbs.) Incline conveying	4.4	22	33	22	
Cross-sectional View of Conveyor					

Conveyor Chain Types and Options

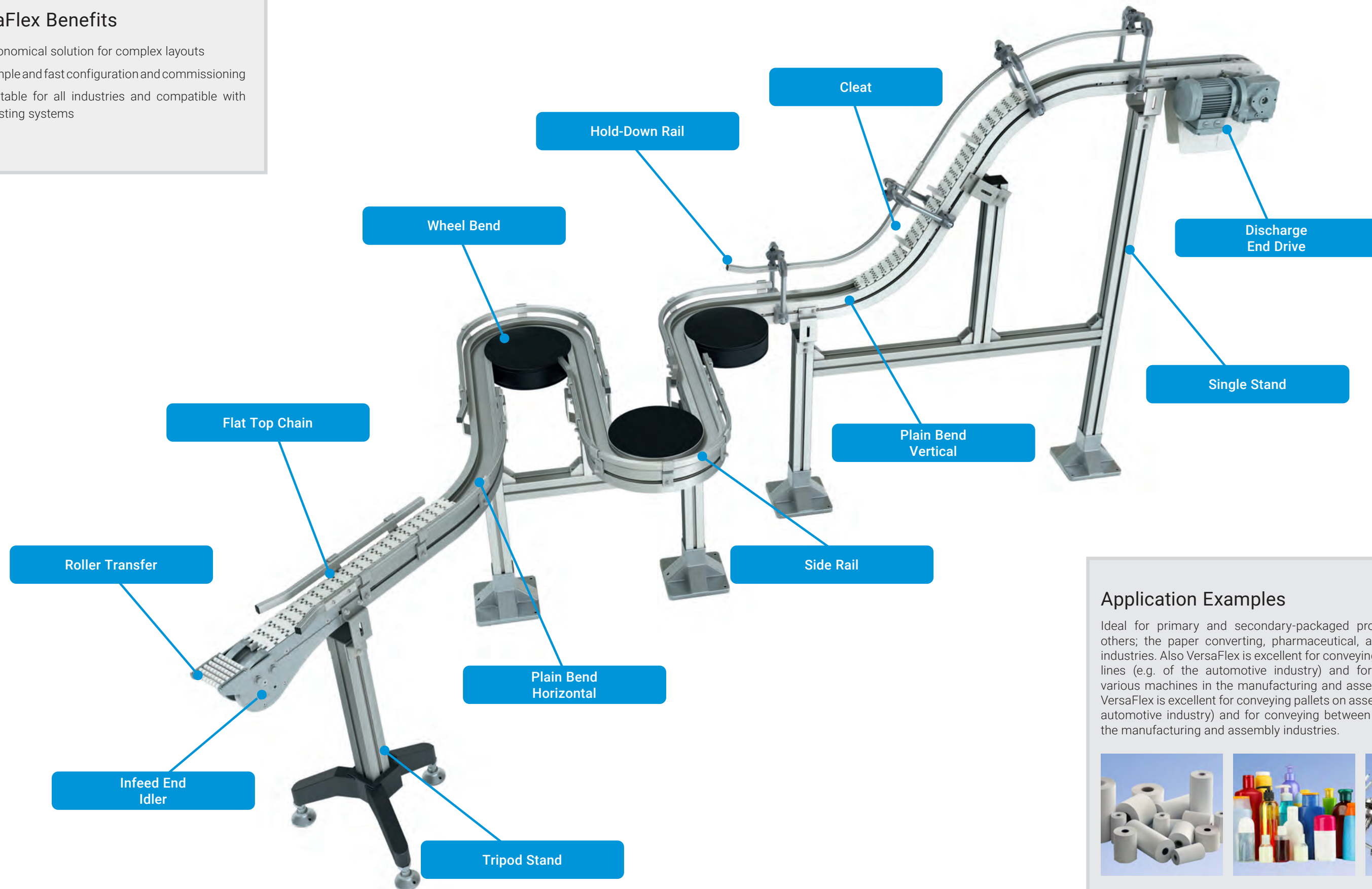
VersaFlex conveyor chains are made from POM and are available in a wide variety of styles for virtually all applications. These styles include with an adhesive surface (for inclines), or with steel covering (for sharp-edged parts) or flocked (for transporting very delicate items). In addition, a large variety of different cleats are available – standard vertical flights, rollers in a variety of sizes, or flexible cleats for wedge conveyor designs. Additionally, chain links with embedded magnets can be used to transport magnetized parts.



- 1 Cleated chain
- 2 Roller chain
- 3 Roller top chain
- 4 Side gripping
- 5 Chain for attachments
- 6 Flocked chain
- 7 Steel top chain
- 8 Chain with adhesive surface
- 9 Plain chain

VersaFlex Benefits

- ✓ Economical solution for complex layouts
- ✓ Simple and fast configuration and commissioning
- ✓ Suitable for all industries and compatible with existing systems

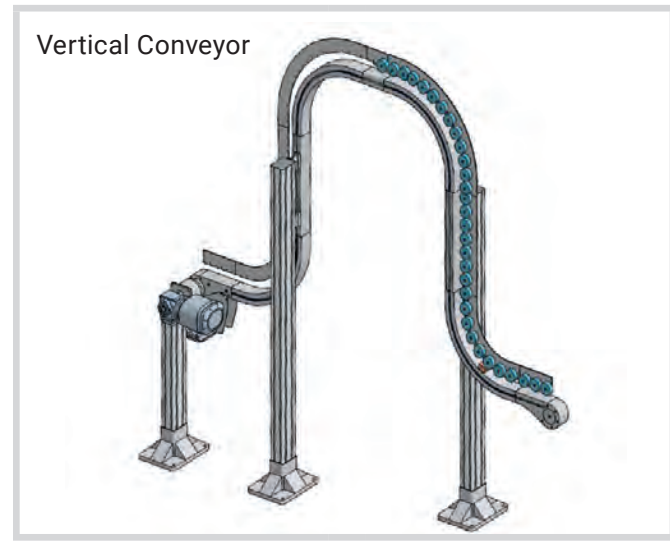
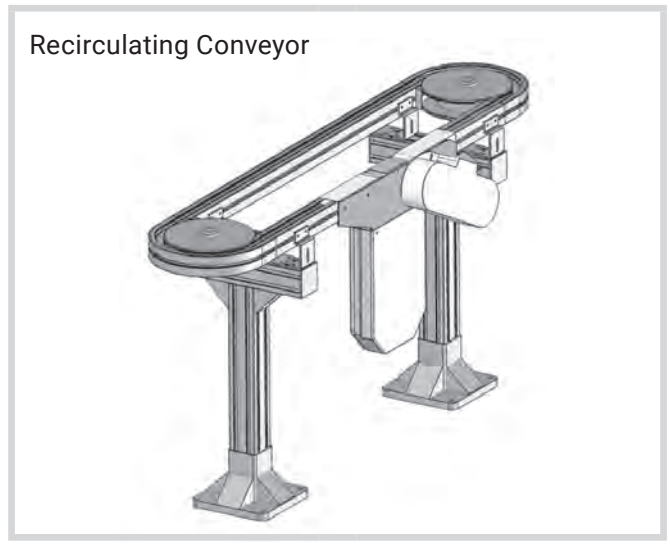
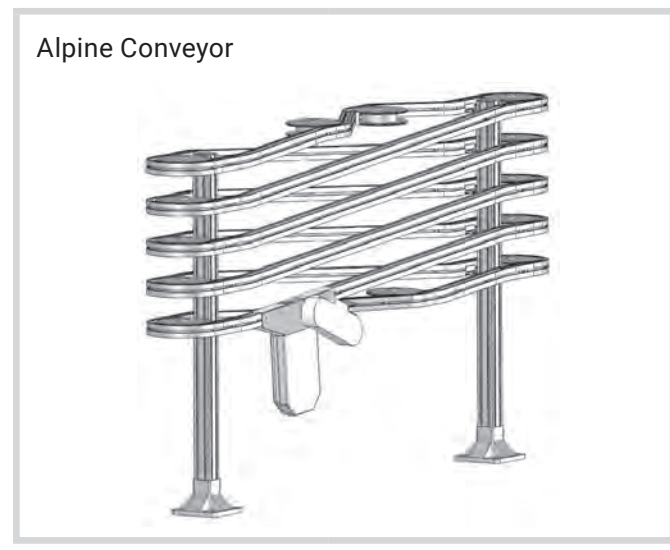
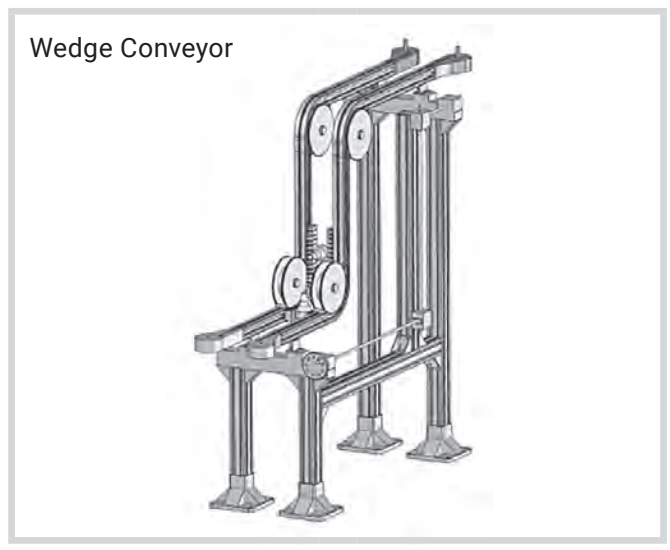
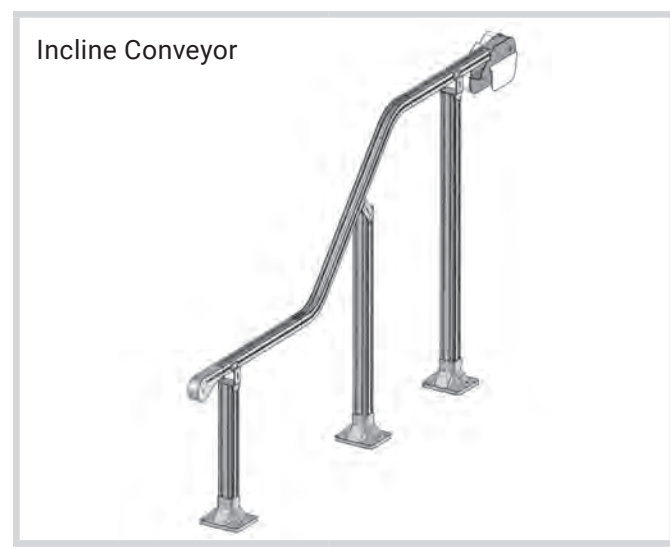
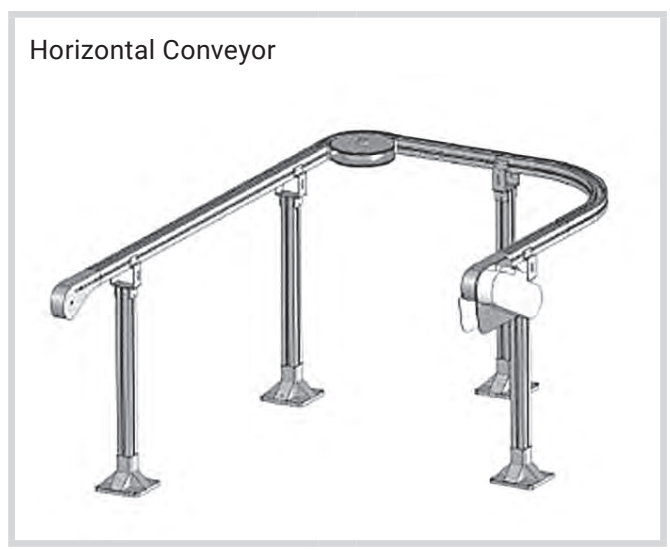


Application Examples

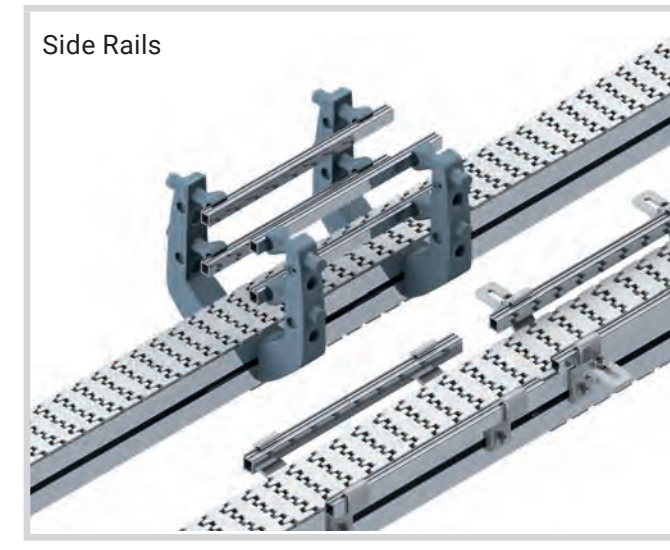
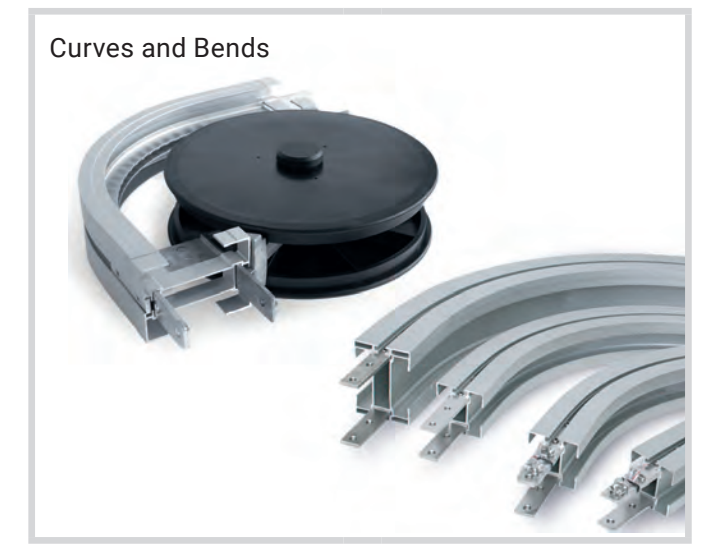
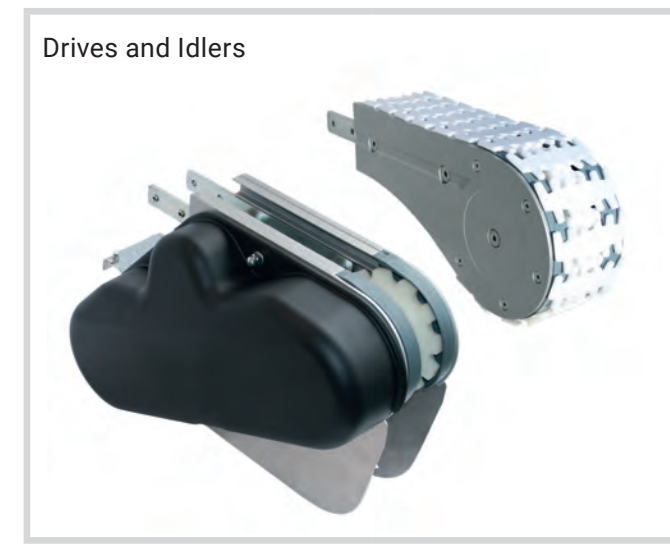
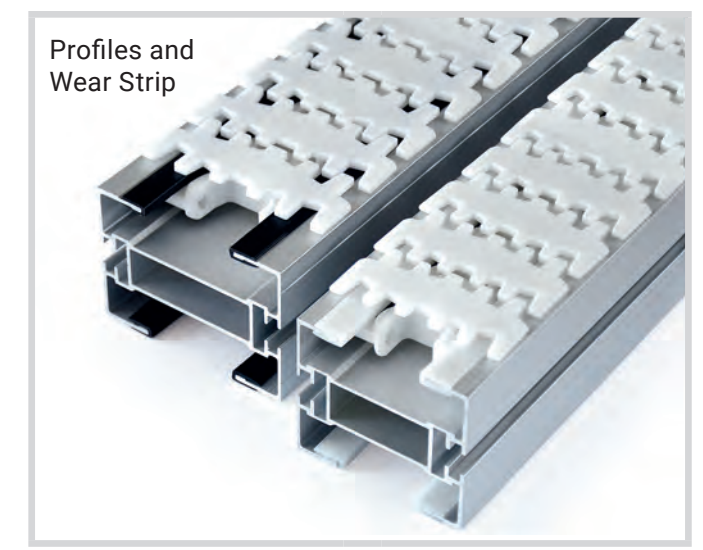
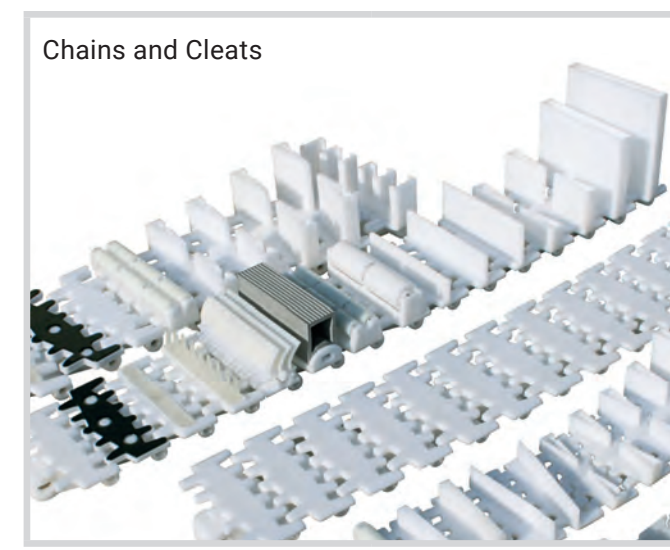
Ideal for primary and secondary-packaged products from, among others; the paper converting, pharmaceutical, and consumer goods industries. Also VersaFlex is excellent for conveying pallets on assembly lines (e.g. of the automotive industry) and for conveying between various machines in the manufacturing and assembly industries. Also VersaFlex is excellent for conveying pallets on assembly lines (e.g. of the automotive industry) and for conveying between various machines in the manufacturing and assembly industries.



Configuration Options



Conveyor Modules



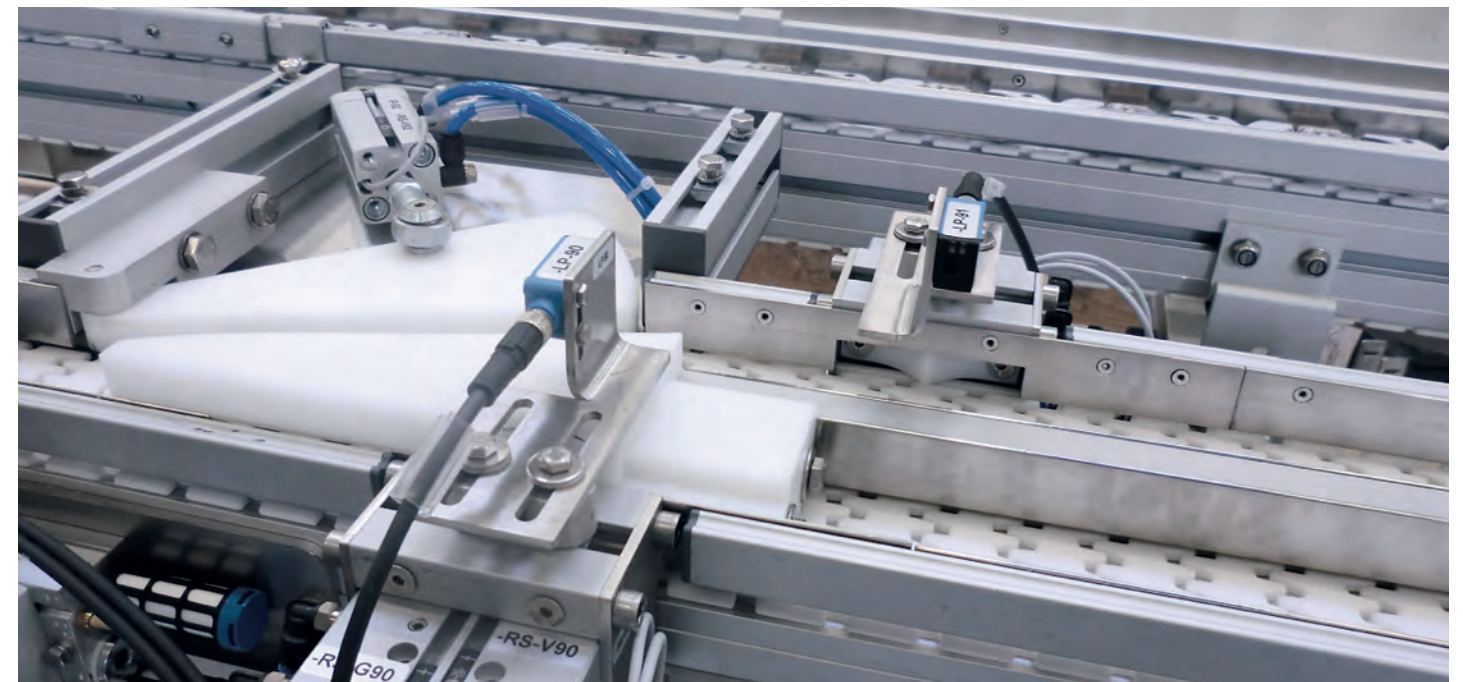
Application Examples



Product transfers, such as the rollers seen here, make it possible to convey products with small footprints between conveyors.



Vertical product conveying is possible for the VersaFlex. In this application guider-rollers above the chain help contain the product.



A wide variety of custom solutions are available with VersaFlex conveyors such as a product separator device.



Quad-lane VersaFlex A06 for conveying product from horizontal to incline. Conveyor chain includes cleats.



Grip top belting allows for VersaFlex conveyors to be used as side-grippers, to carry the product over gaps.



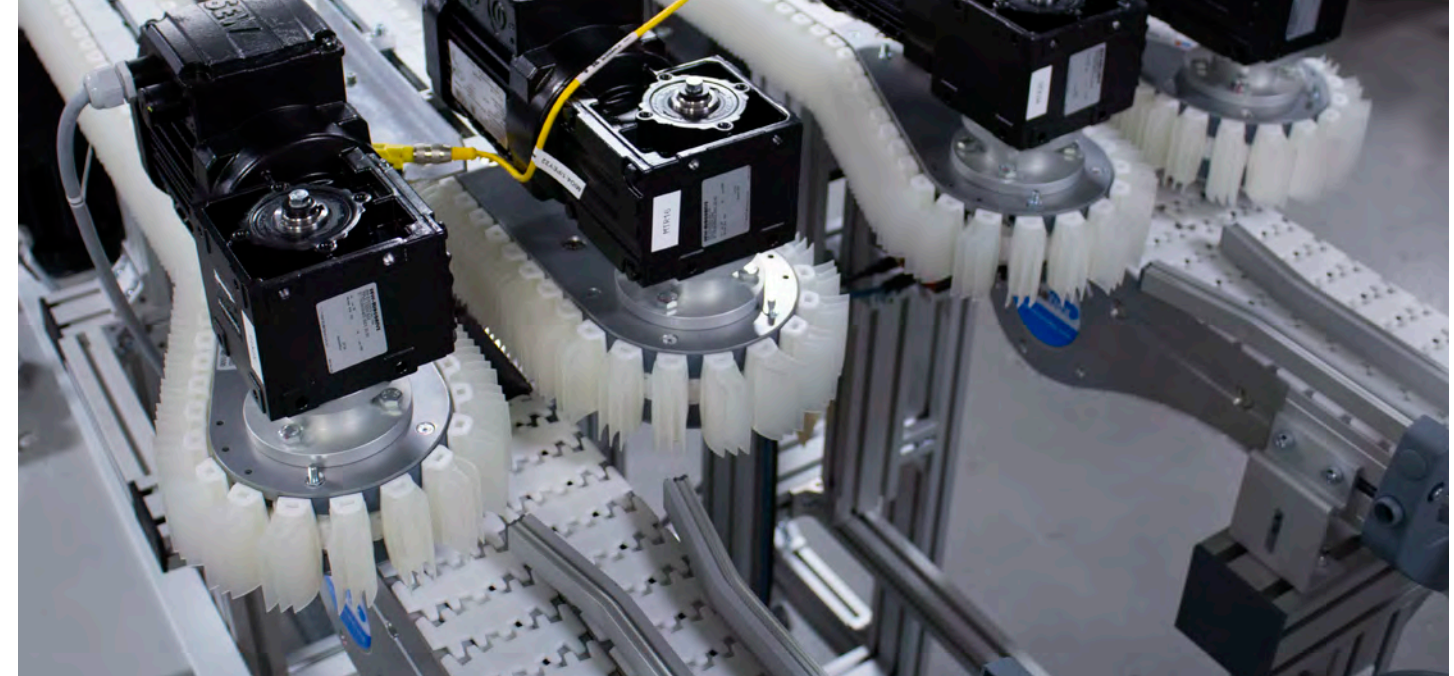
In this example two VersaFlex A17 models share a common support structure before one curves to the right and the other continues straight.



Chains come in a wide variety of styles and finishes, including this steel top chain, item 7 on page 7.



VersaFlex conveyors are ideal for conveying a wide variety of products across many industries.



With VersaFlex it is easy to combine various different conveyor configurations and models into one solution.



A VersaFlex A29 conveyor system that includes a free-standing lift gate (right side of image) to allow for line access.



Two VersaFlex A06 units, with cleated chains, are stacked on top of each other in this application.



In some applications transfer plates are a more suitable option than the standard roller transfers.

VersaFlex – Pallet-Handling System – P08



Solutions for Automation

mk's VersaFlex pallet-handling conveyor system, model P08, is designed to improve manufacturing productivity while allowing for maximum process flexibility. Based on the 85 mm wide VersaFlex table top chain conveyor this pallet-handling system is designed to work with 150 mm wide pallets.

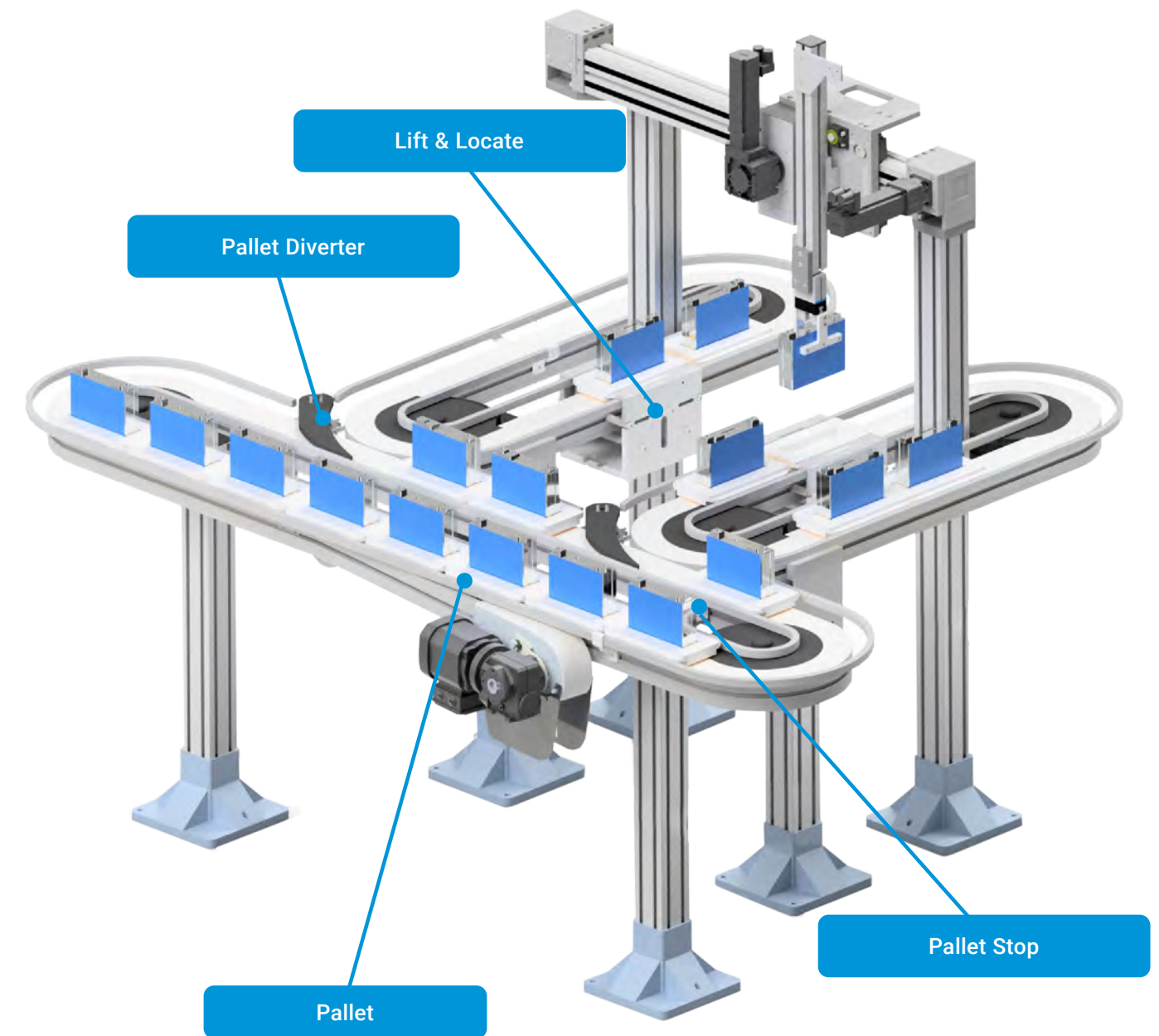
Stops, queues and locate stations are all part of the VersaFlex pallet-handling line and are the modules that allow pallets to be accumulated, separated and located. Additionally, The pallet can be customized and equipped with individual fixtures.

Features of VersaFlex Pallet-Handling

- ✓ Delrin® pallets in three standard sizes:
 - ✓ 150 x 150 mm
 - ✓ 150 x 200 mm
 - ✓ 150 x 250 mm
- ✓ Up to 22 lbs. load per pallet
- ✓ Repeat accuracy up to ± 0.25 mm
- ✓ Conveyor width of 85 mm
- ✓ Conveyor length up to 30 m
- ✓ Conveyor speed up to 165 fpm

Benefits of VersaFlex Pallet-Handling

- ✓ Space saving designs and configurations
- ✓ Easy to expand and reconfigure conveyor layout
- ✓ Excellent for accumulating product between stations
- ✓ Can quickly be altered to adapt for changes to product
- ✓ Easily conveys products that have unusual shapes or geometry



 P08 Pallet-Handling Systems		
	Features	Technical Data
VersaFlex A08 Flat Top Chain Conveyor		
	<ul style="list-style-type: none"> ▪ Straight running, curves and inclines ▪ Frame height is 85 mm including chain ▪ 85 mm frame width with 83 mm chain width ▪ POM flat top chain ▪ Double deep t-slots on each side of the frame ▪ 160 mm minimum curve radius 	<ul style="list-style-type: none"> ▪ Length: up to to 30,000 mm ▪ Loads: up to 22 lbs./pallet ▪ Speeds: up to 165 fpm
SU Undamped Pallet Stop		
	<ul style="list-style-type: none"> ▪ Typically used for pallet singulation ▪ Undamped pneumatic stop ▪ Single or dual-acting ▪ Maintenance free ▪ High load capacity ▪ High cycle rate 	<ul style="list-style-type: none"> ▪ Total load is dependent on stop version and conveyor speed ▪ Working pressure: treated compressed air, 4 - 8 bar
Lift and Locate		
	<ul style="list-style-type: none"> ▪ Positions and lifts a single pallet, via pneumatic cylinder ▪ Locating pins within Lift and Locate unit engage with bushings on the pallet ▪ Maintenance free operation ▪ Includes lifting cylinders, integrated undamped stop and mounting ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Repeat accuracy: ± 0.25 mm ▪ Additional Pallet Stops are required, but not included, in order to control pallet flow
Pallet Diverter		
	<ul style="list-style-type: none"> ▪ Designed to divert pallets from one conveyor to another ▪ Includes rotary actuator, one-way control valves, and proximity sensor with sensor bracket ▪ Assembly is mounted and integrated into the conveyor ▪ Maintenance free operation 	<ul style="list-style-type: none"> ▪ Left or Right orientation ▪ Constructed out of phenolic resin for long-life and durability

Pallets

VersaFlex pallets act as product carriers as they move around the conveyor system. Pallets can be tooled with fixtures to secure products for manual or automated operations. All mk pallets contain a set of precision bushings. These bushings are for mating with the locating pins in the different modules.

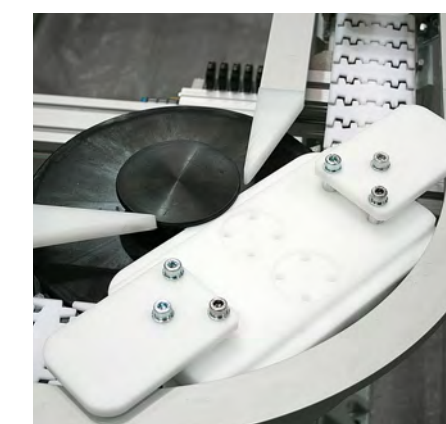
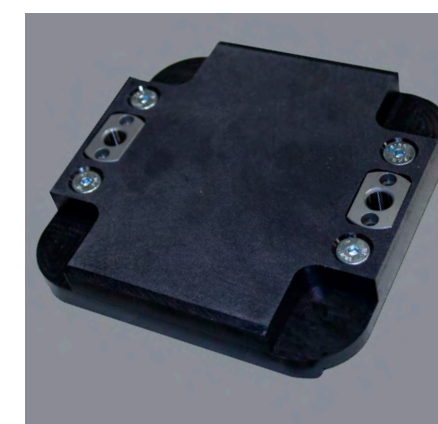
150 mm long

200 mm long

250 mm long

Pallet Features and Benefits:

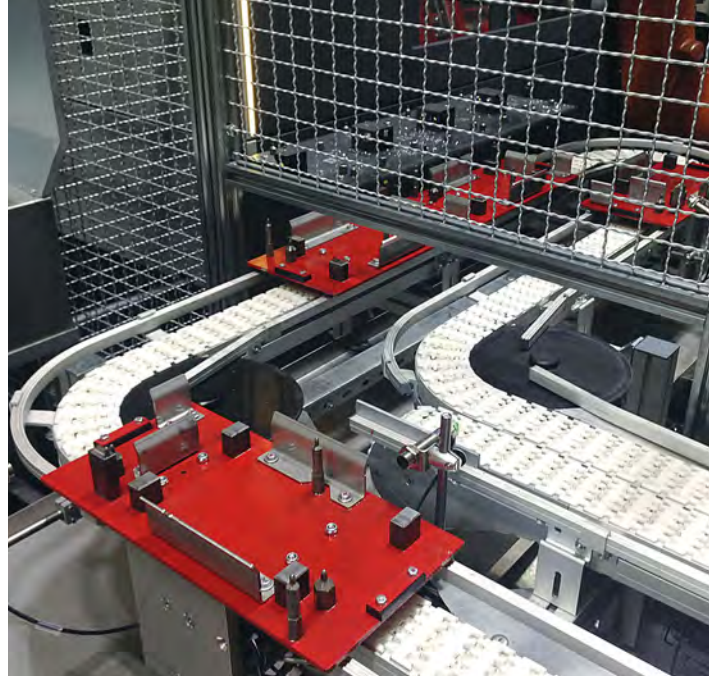
- ✓ 150 mm wide
- ✓ 27 mm tall
- ✓ Constructed out of Delrin®
 - ✓ White or Black
- ✓ Includes locating bushings for interfacing with locating pins in Lift and Locate module
- ✓ Pallet Stop edges located on the underside of the pallet
- ✓ Surface plates can be machined to accept fixtures and additional tooling



Application Examples – Pallet Handling



Diversers economically and effectively help control pallet flow on a VersaFlex pallet-handling system.



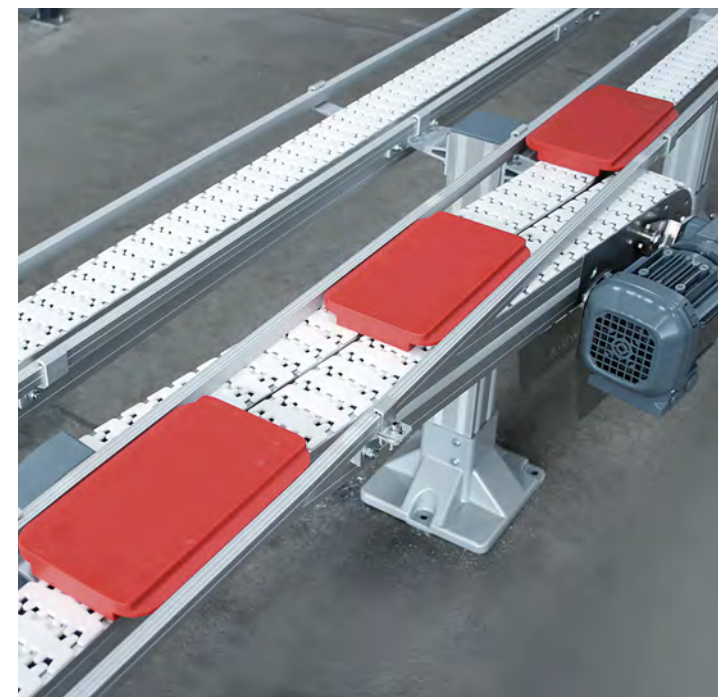
While the bottom structure of the pallet often remains the same, it is easy to add custom topside pallets and fixtures.



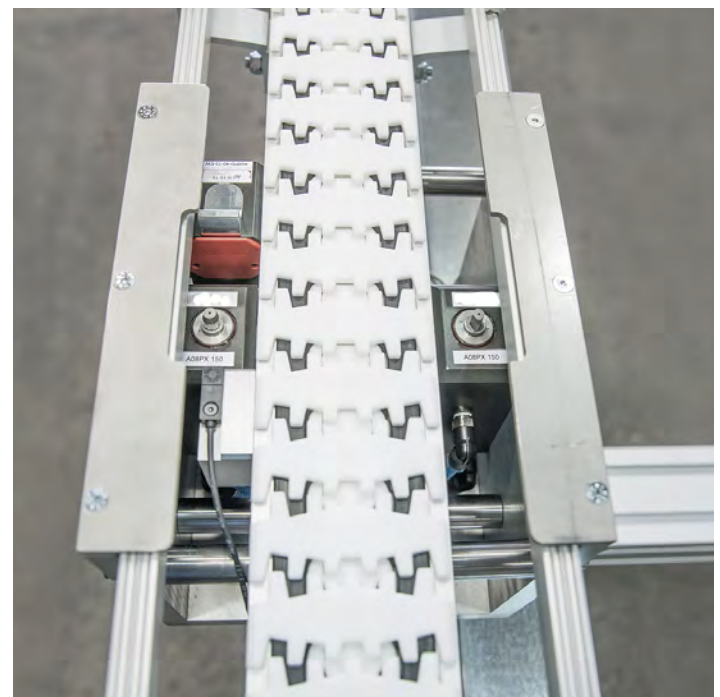
Stop, locate and lift features are fully modular, allowing them to be positioned anywhere along the conveyor line without adjusting the side rails.



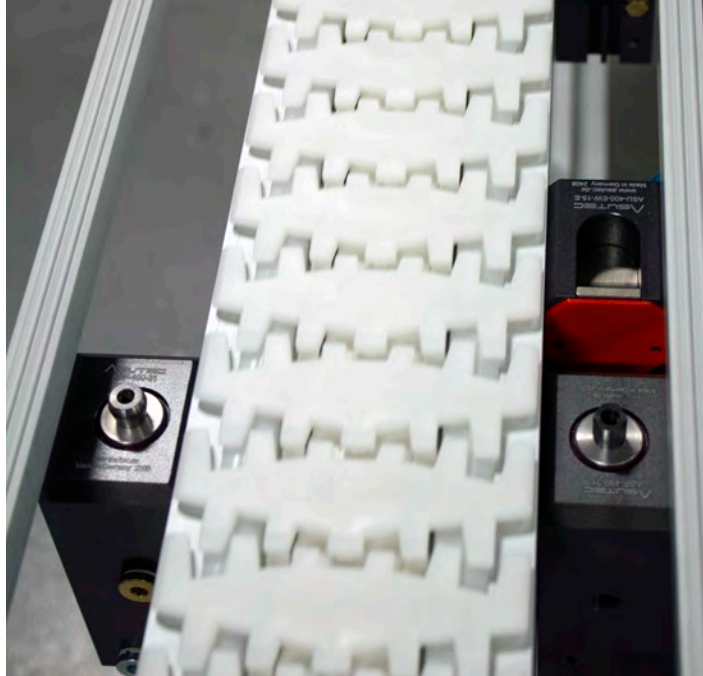
In this example we can see the Lift and Locate device in the foreground, with an integrated stopping device.



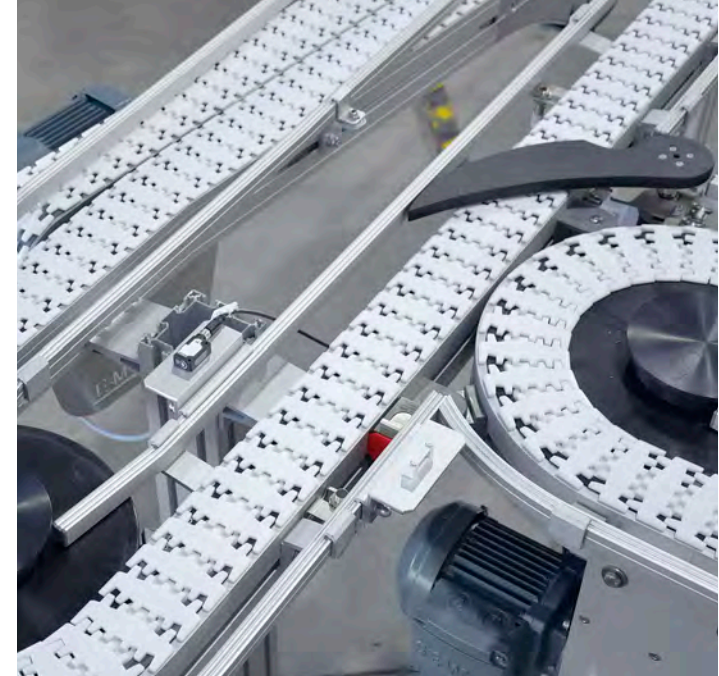
In this example pallets side transfer off one conveyor and on to the next conveyor.



Pallets are designed to overhang the edges of the chain. This allows them to engage with stop and locate features.



This image features a Pallet Stop integrated into the Lift and Locate on a VersaFlex P08.



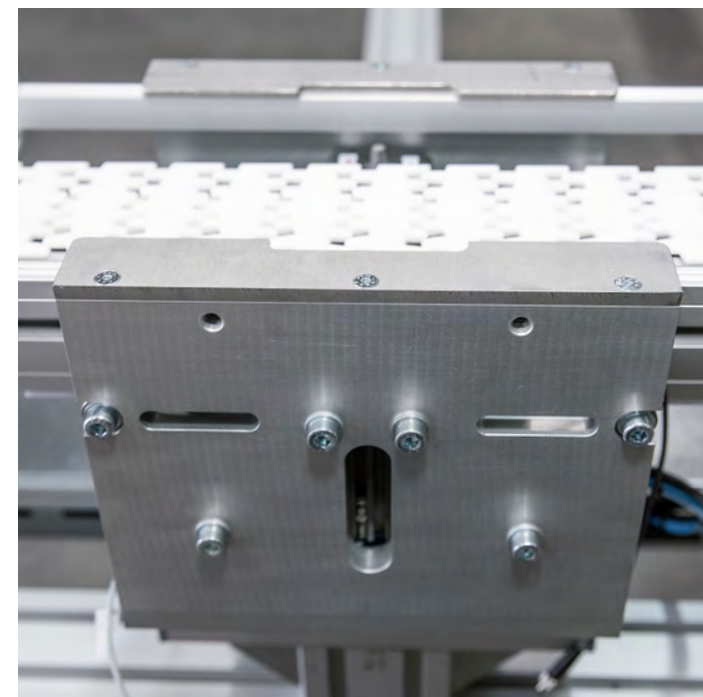
In this image there are two different types of pallet transfers visible, a pallet diverter and to the left of that a side transfer.



Pallets pass through a number of locating stations along a recirculating conveyor line.



In this example a pallet is about to come in contact with a Pallet Stop. Pallet Stops are used to stop a pallet at a designated location.



A side view of a Lift and Locate, as it is mounted into the frame of a conveyor.



A custom pick and place unit is used to move pallets from one VersaFlex P08 conveyor to another.

Our Other Products

Conveyor Systems & Linear Motion

With over 20 different conveying systems, mk offers a product variety which is unsurpassed in the marketplace. Our broad offering, and more than 30 years of experience in material handling, leads to robust solutions that feature long life and reliable operation while maintaining all the advantages of modular design and expandability.

Our innovative conveying solutions, both standard and custom, have proven themselves in automotive, manufacturing, machine builder & integrators, metal working, packaging, pharmaceutical and printing industries.



VersaMove Pallet-Handling Conveyor Systems



mk North America manufactures pallet conveyors over three different platforms. This allows for the pallet-handling system to be tailored to meet your specific needs. mk believes in offering not only a better product, but also a better solution. VersaMove pallet-handling conveyors are pre-engineered and modular. The system can be easily expanded or reconfigured as your manufacturing needs change. Our workpiece pallet conveyors can be used in a variety of layouts, or combined for even greater flexibility in planning production processes. www.mkversamove.com



Extruded Aluminum Framing

mk Aluminum Framing Systems feature over 200 different profile shapes and more than 2,700 connectors and system components, all engineered for a precise fit and maximum rigidity. Forget the hassles and inflexibility of steel – the welding, grinding, painting and waiting. mk offers you fast assembly, easy reconfiguration and unlimited flexibility.

With mk Aluminum Framing you can build just about anything you can imagine. Whether it be machine bases, safety enclosures, perimeter guards, tool racks, robot stands, carts, workstations, display units or something else, with mk's aluminum framing the possibilities are nearly limitless.



Over-Under In-line Pallet Conveyors

The SPU-2040 is an accumulating pallet recirculating conveyor system which offers feeding, buffering, positioning and separating of workpieces in the smallest possible space. The robustness and the variety of the various models available allows this conveyor to be used in practically all areas of automation and material flow.

The SPU 2040 is an alternative to traditional over-under pallet-handling conveyor systems. It omits the need for a second conveying level and the vertical transfer units for moving the pallet between the levels. The SPU 2040 has fewer motors, drives, mechanical components, pneumatics, and controls when compared to a traditional over-under conveyor system.



Fixtured Chain Conveyors with Adjustable Width

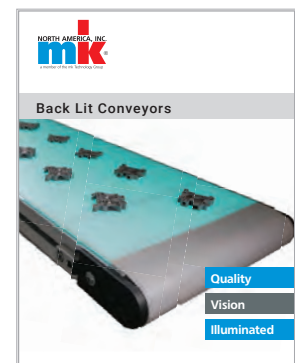
The TKU 2040 indexing chain conveyor features chain with attachments, as a standard, along with a high load capacity frame and the option for an adjustable width.

The TKU 2040 is specially designed for indexing. The TKU 2040 is optimized for fixed-cycle operation and is perfect for use in automated production. The adjustable width option allows for one conveyor to carry products of different lengths.



Back-Lit Conveyors

Back lit, or back light, conveyors are designed to aid in visual inspection and quality control. Using the latest technologies in belt material and fabrication; in combination with state-of-the-art light-panels and conveyor design; back lit conveyors provide an enhanced contrast between the product and the conveyor. This feature compliments vision systems and camera or digital recordings - aiding both robotic and human-operated processes.



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