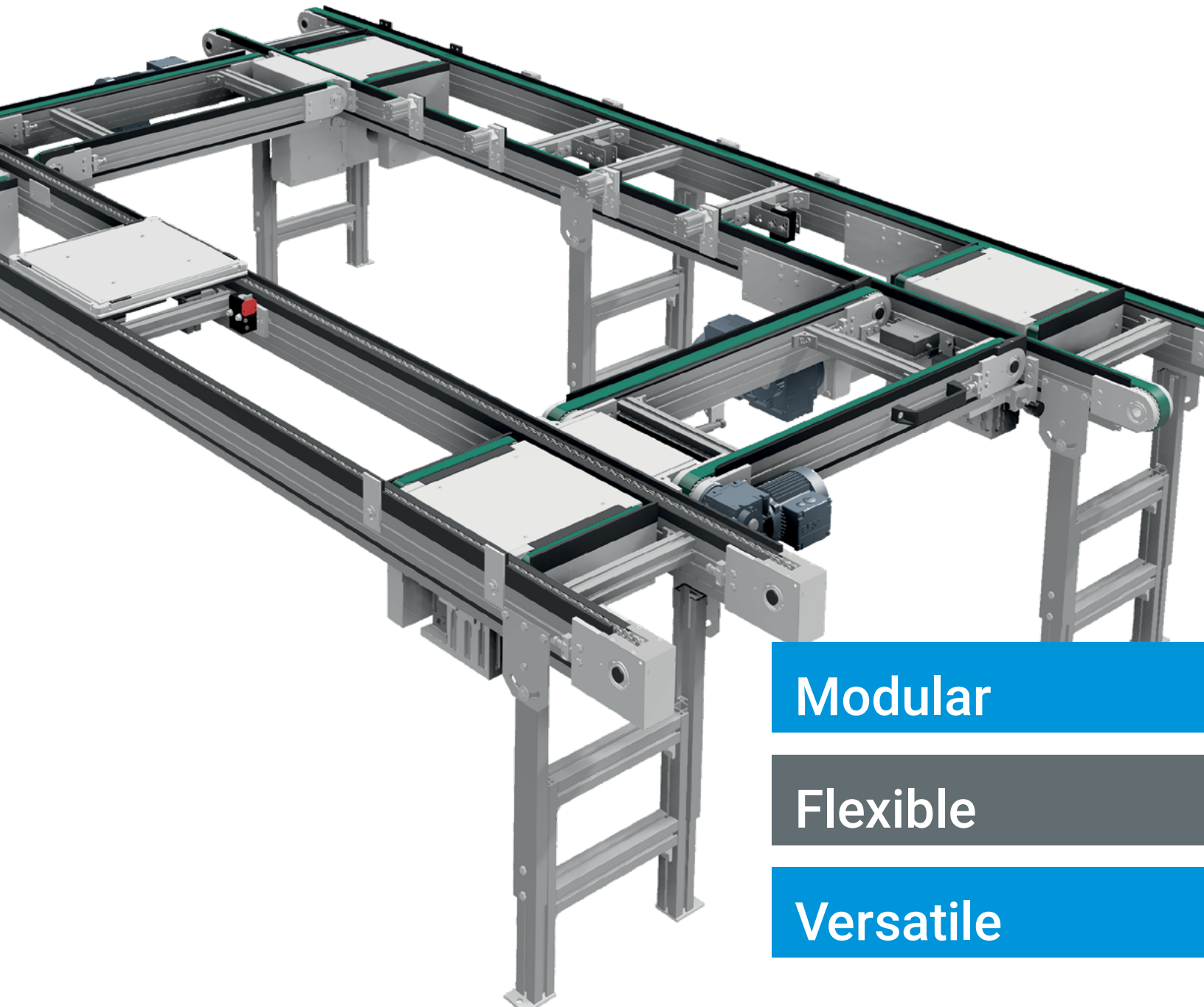




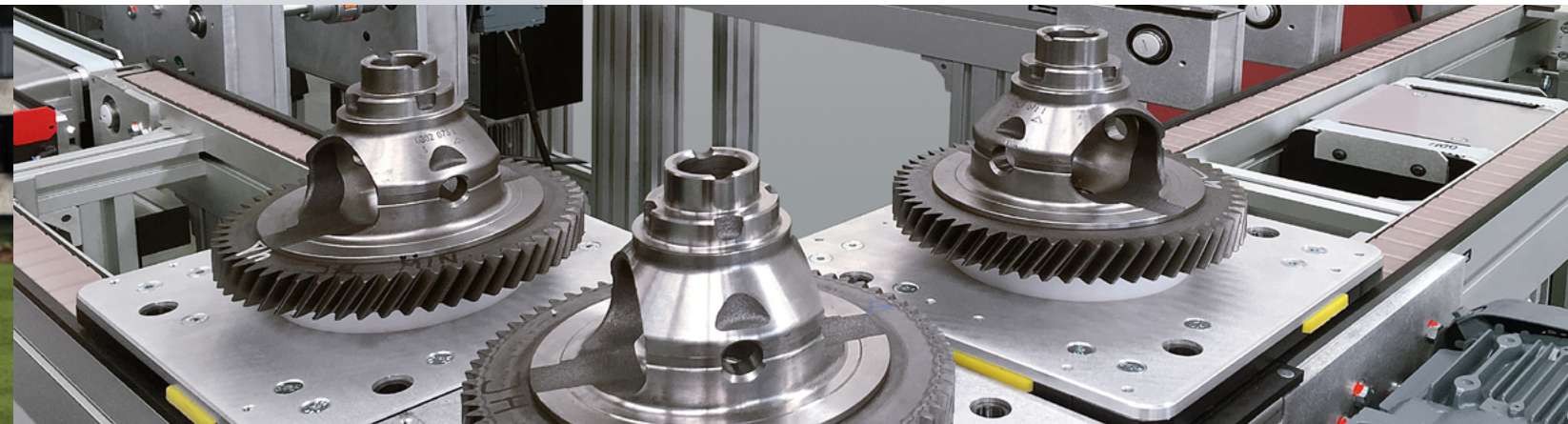
Pallet-Handling Conveyors for Modern Manufacturing



Modular

Flexible

Versatile



Introduction to mk

mk North America, Inc. is a member of the mk Technology Group and a leading worldwide manufacturer of pallet-handling systems, aluminum conveyors, flexible flat top chain 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.

Modular

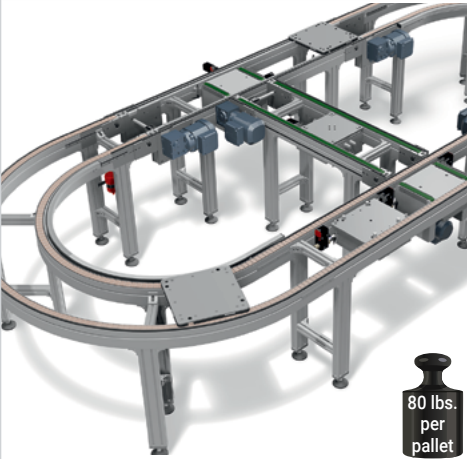
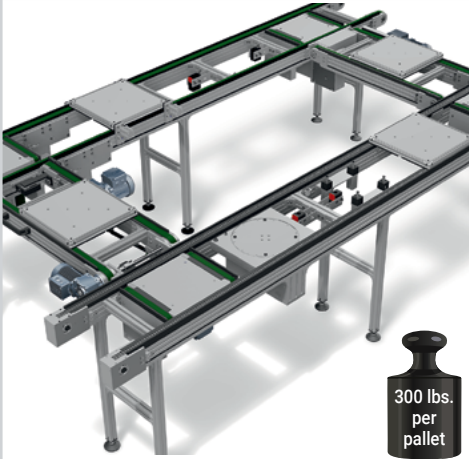
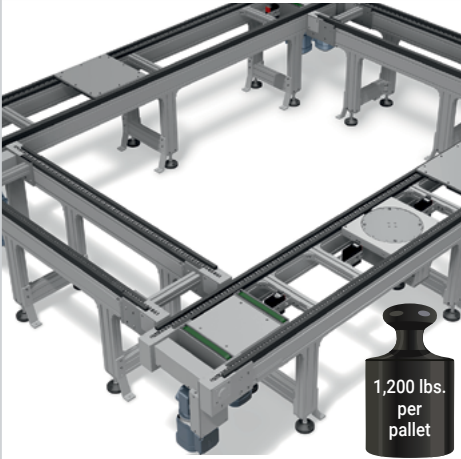
At mk North America, we believe in offering you better products and being your partner for better solutions. All of our pallet-handling conveyors are designed and constructed using pre-engineered elements that we call modules which can be combined as needed to create the ideal system for your application. This modular approach allows for easy expansion as well as reconfiguration and relocation of elements within the system, making mk VersaMove® conveyors easily adaptable to your changing needs.

Flexible

mk's VersaMove pallet-handling conveyor systems are designed to improve manufacturing productivity while allowing for maximum process flexibility. The VersaMove systems come in three different size platforms and offers three different types of conveying media. The various platforms and conveyor types can be combined within a single system, allowing for maximum flexibility. Because the conveyors are built using mk's own extruded aluminum, it is easy to add and configure mk workstations and safety guarding thus adding value to your system.

Versatile

With three different VersaMove pallet-handling platforms, running pallet payloads ranging from 1 to 1,200 pounds, mk has a conveyor system to meet just about any loading requirement. This means mk pallet-handling systems can be used in a wide variety of industries and applications. VersaMove components are offered as individual modules, mechanically complete, or as turnkey solutions. Furthermore, we assemble and test all of our conveyors at mk North America before shipping them to you, so you can get up and running quickly. We offer complete service, including installation, controls, and after-sales support. At mk, we offer not only better products but also better solutions — providing for a maximum return on your investment.

versa move standard	versa move +plus	versa move ultra
		
80 lbs. per pallet	300 lbs. per pallet	1,200 lbs. per pallet
Total load per pallet		
Up to 80 lbs.	Up to 300 lbs.	Up to 1,200 lbs.
Pallet sizes		
240 x 240 mm to 400 x 400 mm	400 x 400 mm to 1,200 x 1,200 mm	640 x 640 mm to 1,500 x 1,500 mm
Conveyor types		
Flat top chain conveyors Timing belt conveyors Accumulating roller chain conveyors	Timing belt conveyors Accumulating roller chain conveyors	Timing belt conveyors Accumulating roller chain conveyors
Frame cross-section		
100 x 45 mm	100 x 50 mm	135 x 60 mm
Conveyor speeds		
Up to 90 fpm	Up to 90 fpm	Up to 80 fpm
Special features		
Curved conveyors available	Versatile options	High load capacity

Always the right system

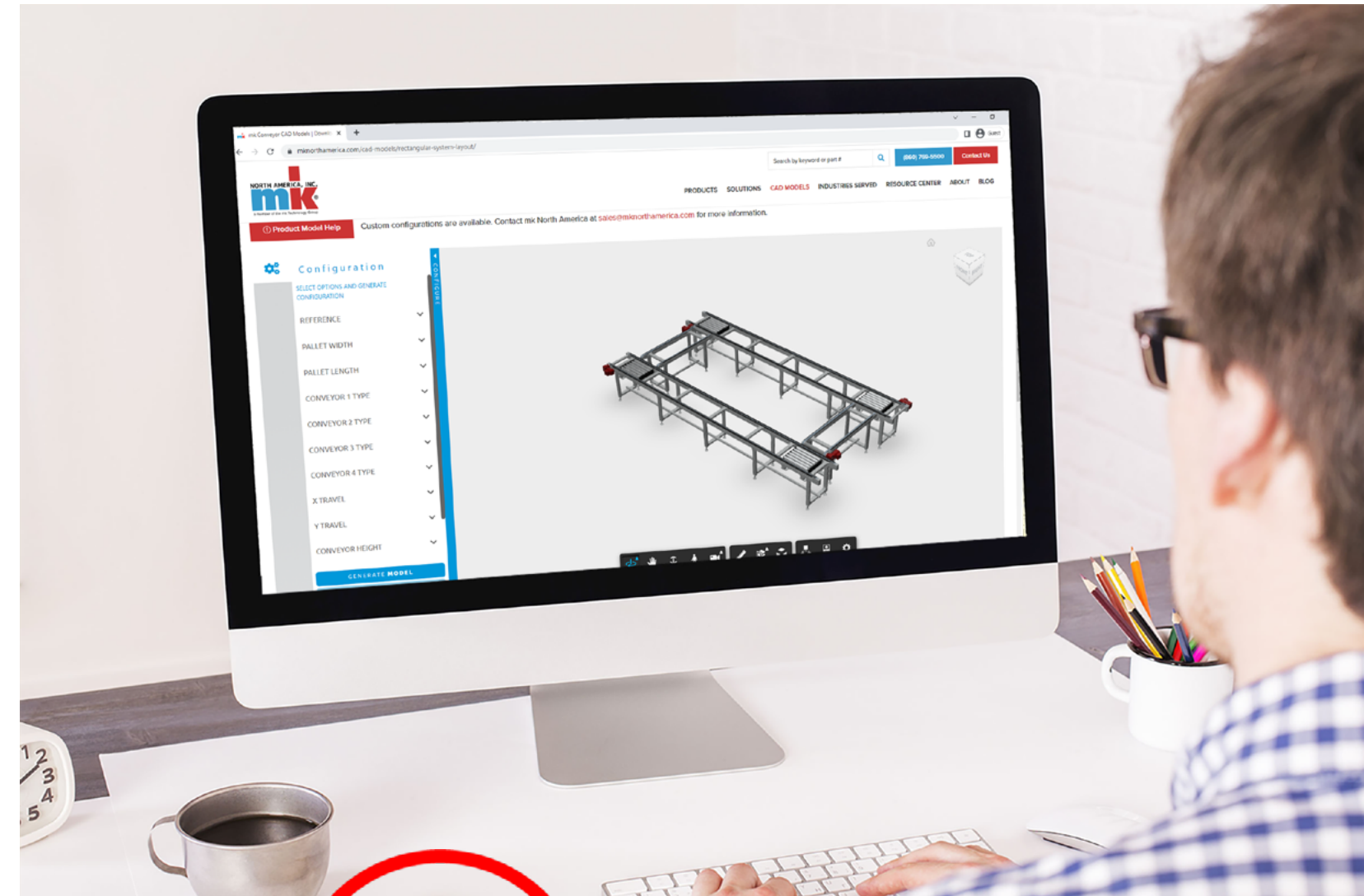
VersaMove is a non-synchronous workpiece pallet-based conveyor system designed to improve manufacturing productivity and product quality while allowing for maximum process flexibility.

VersaMove conveyors are offered in three platforms: VersaMove Standard, VersaMove Plus and VersaMove Ultra to suit a wide range of applications. Each platform

offers a complete series of vertical and horizontal pallet-transfers, as well as positioning and control modules to satisfy the varied requirements of manual or automated assembly and testing operations.

VersaMove pallet-handling conveyor systems can easily and quickly be customized to meet your unique material handling needs.

Online Conveyor System Modeling



CAD360!

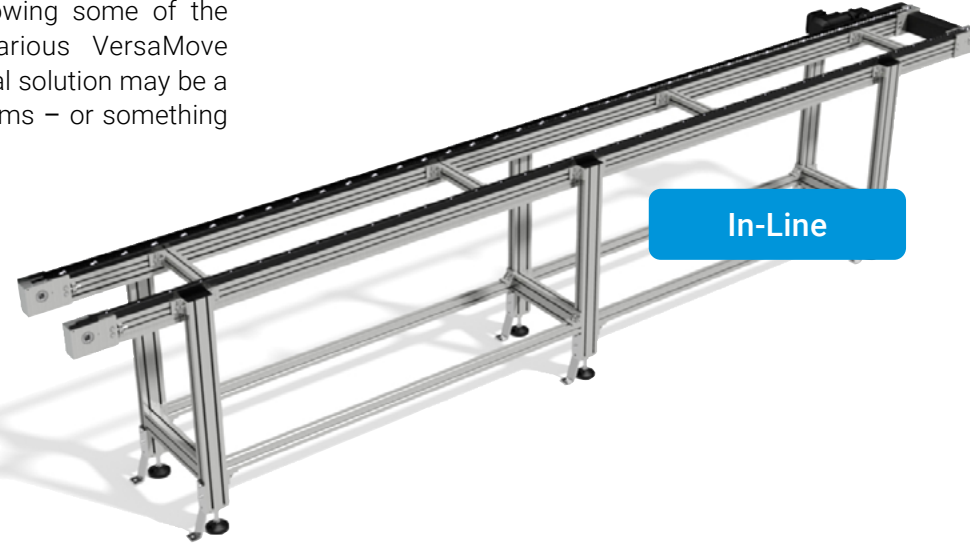
Quickly and Easily Configure and Download CAD Models

- ✓ Select from a wide range of pre-designed layouts or design your own, choosing from an expansive selection of conveyor options
- ✓ Drag and drop features allow for quick and easy system configuration
- ✓ Customize conveyor lengths, pallet sizes, drive locations and so much more
- ✓ A wide variety of download options including: 3D DWF, STP, 2D DWG, JPG and PDF files
- ✓ Usable on any device connected to the Internet

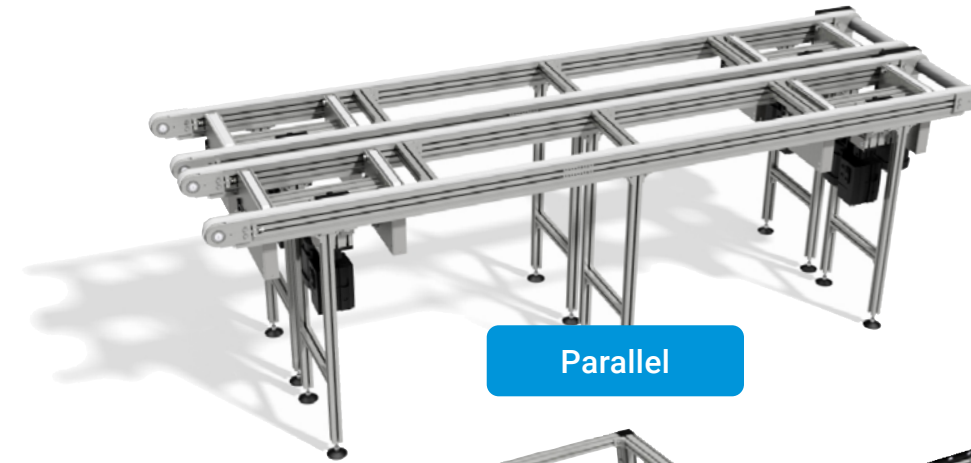
www.mkcad360.com

Configuration Examples

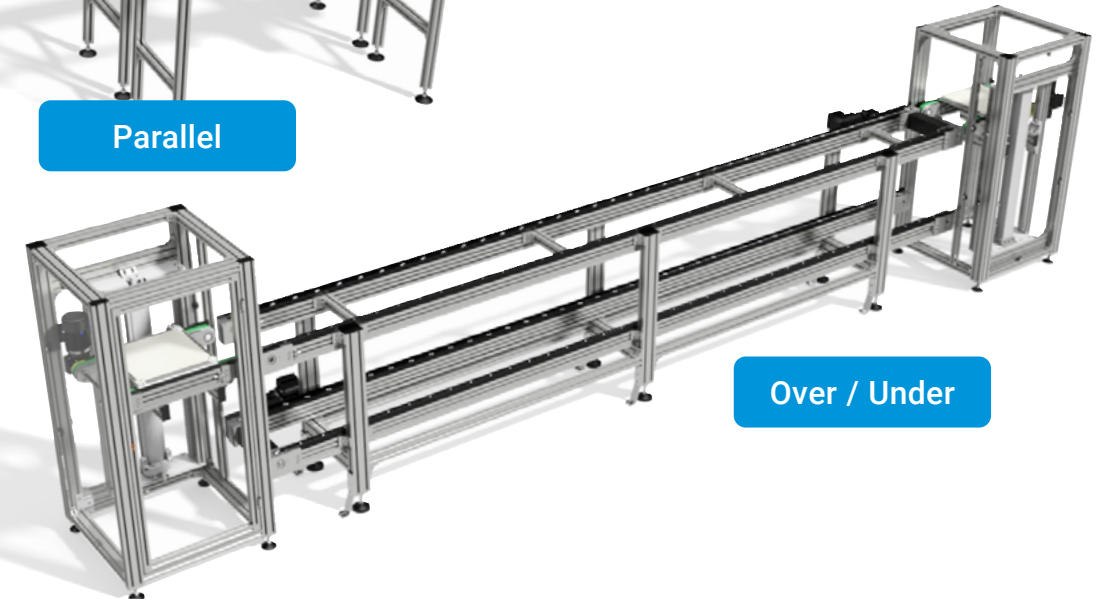
Following are six basic examples showing some of the configurations possible with the various VersaMove platforms. Often times a customer's final solution may be a variation or combination of these systems – or something completely unique.



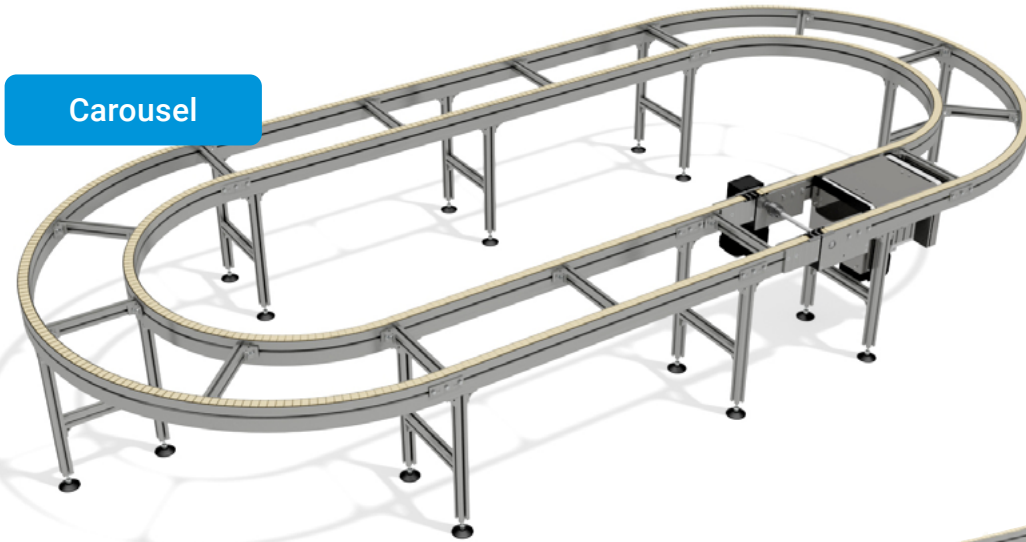
In-Line



Parallel



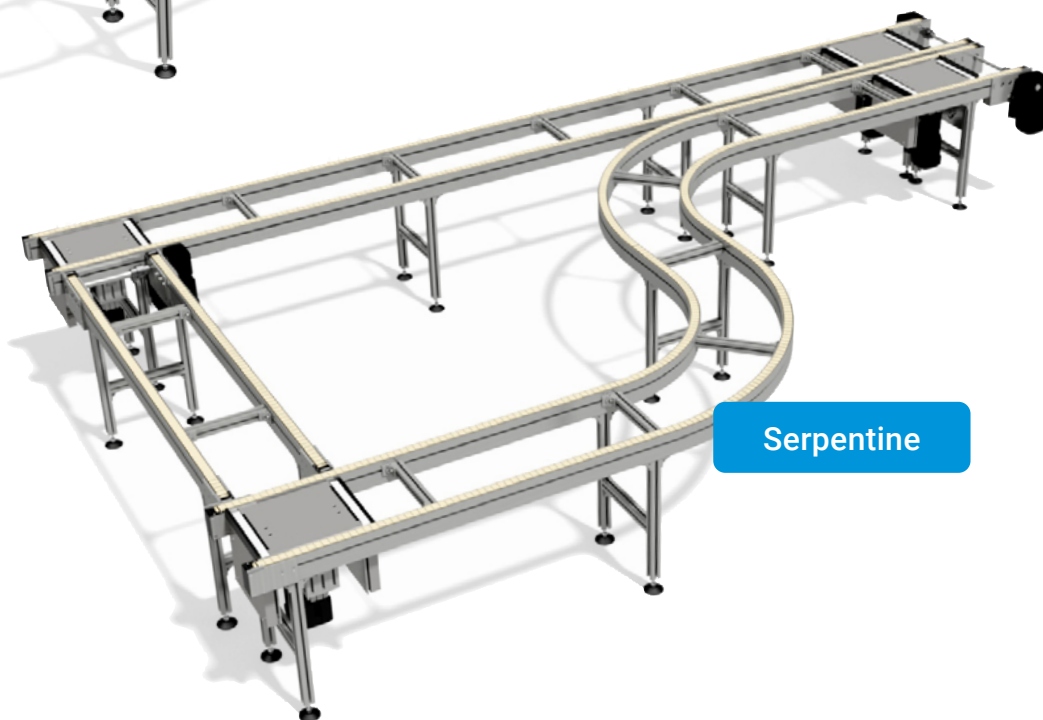
Over / Under



Carousel



Rectangular



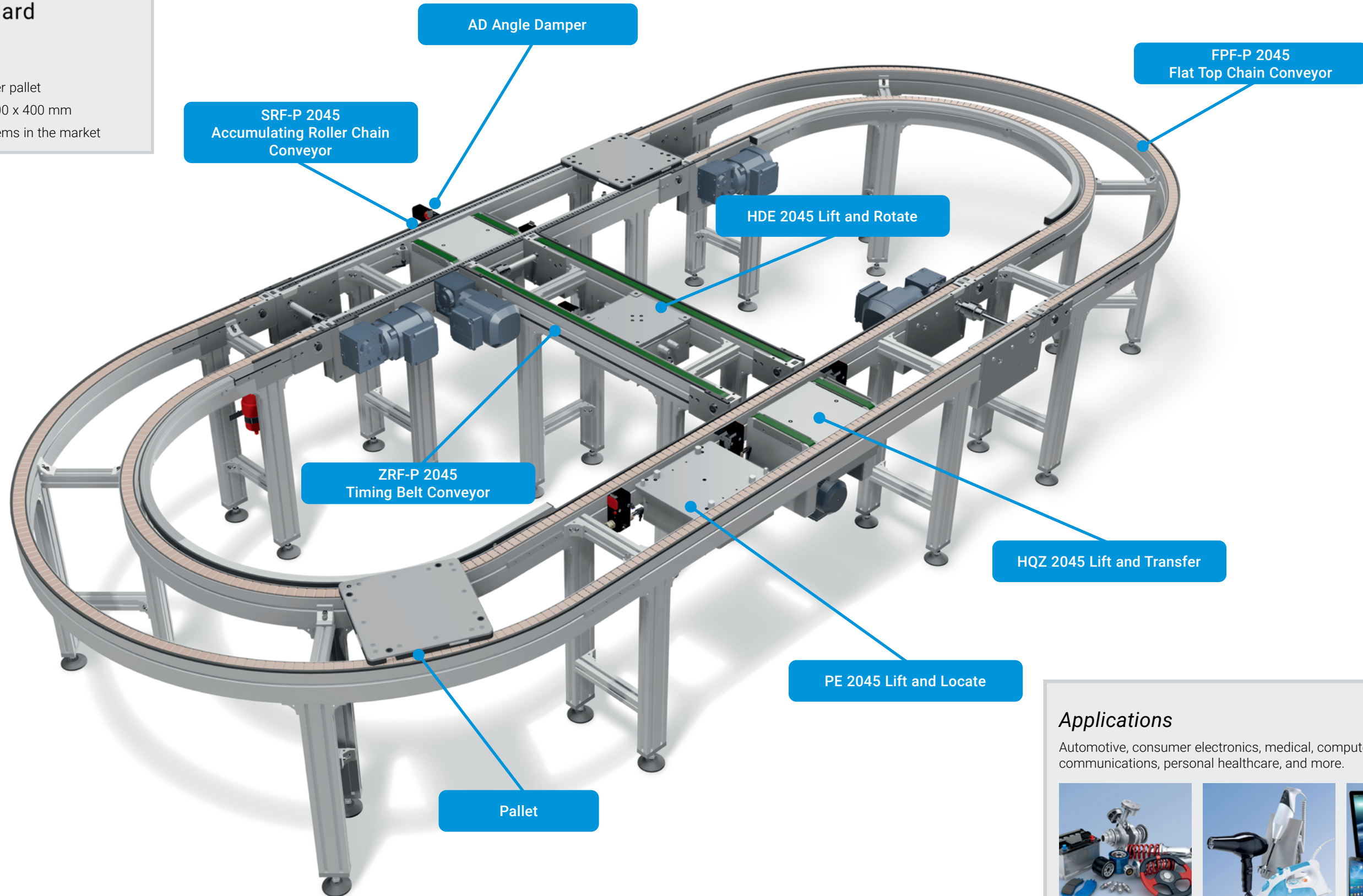
Serpentine

Type	Configuration Details	Standard	Plus	Ultra
In-Line	Simple set-up in which product is moved in a straight line	✓	✓	✓
Carousel	Maintains leading edge by operating on the FPF-P 2045 platform Economical; no transfers required	✓		
Serpentine	Ideal for moving around fixed obstructions Requires the use of the FPF-P 2045 platform	✓		
Parallel	Allows for operators on both sides of the line; a space saving design	✓	✓	✓
Over / Under	For when floor space is limited; pallet returns over or under the main line	✓	✓	✓
Rectangular	Ideal in systems that have a more complex processes yet require flexibility	✓	✓	✓

versamove
standard

Features

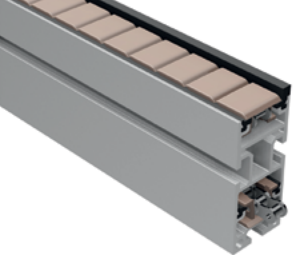
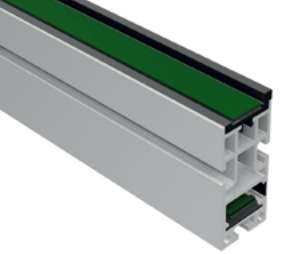
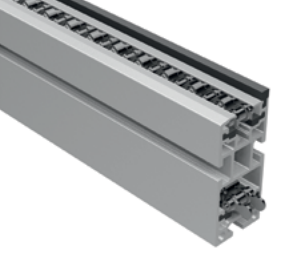
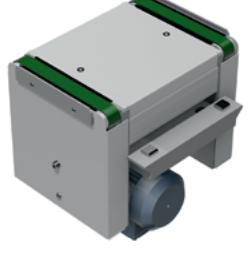
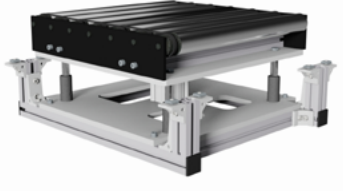
- ✓ Up to 80 lbs. total weight per pallet
- ✓ Pallet sizes: 240 x 240 to 400 x 400 mm
- ✓ Compatible with other systems in the market

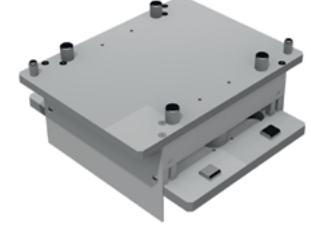












Applications



Automotive, consumer electronics, medical, computer hardware, communications, personal healthcare, and more.

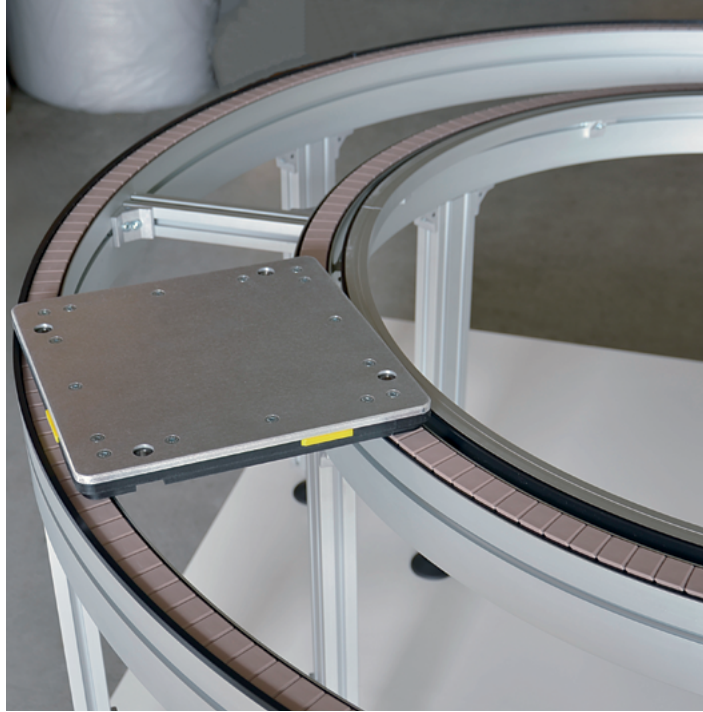


versamove standard		
	Features	Technical Data
FPF-P 2045 Flat Top Chain Conveyor		
	<ul style="list-style-type: none"> ▪ Suitable for accumulating operation ▪ Profile is 45 x 98 mm ▪ 1-¼-inch wide chain ▪ Curve module (minimum radius of 600 mm) ▪ Curve angle 90° and 180° ▪ Automatic chain tensioning included ▪ Anti-static wearstrip 	<ul style="list-style-type: none"> ▪ Length: 500 to 20,000 mm ▪ Loads: up to 700 lbs./drive ▪ Speeds: up to 90 fpm
ZRF-P 2045 Timing Belt Conveyor		
	<ul style="list-style-type: none"> ▪ Designed for indexing applications and continuous movement ▪ Profile is 45 x 98 mm ▪ 25 mm wide timing belt ▪ Coated timing belts for long life ▪ Anti-static wearstrip 	<ul style="list-style-type: none"> ▪ Length: 500 to 15,000 mm ▪ Loads: up to 550 lbs./drive ▪ Speeds: up to 90 fpm
SRF-P 2045 Accumulating Roller Chain Conveyor		
	<ul style="list-style-type: none"> ▪ Ideally suited for accumulating operation ▪ Profile is 45 x 98 mm ▪ ½-inch pitch accumulating roller chain ▪ Accumulating rollers available in steel and plastic ▪ Automatic chain tensioning ▪ Anti-static wearstrip ▪ Touch safe chain (optional) 	<ul style="list-style-type: none"> ▪ Length: 500 to 20,000 mm ▪ Loads: up to 1,650 lbs./drive ▪ Speeds: up to 90 fpm
HQZ 2045 Lift and Transfer		
	<ul style="list-style-type: none"> ▪ Conventional right angle transfer ▪ 25 mm wide timing belt ▪ Pneumatic lifting movement ▪ Guidance using linear bearings and guide rods ▪ Bi-directional ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Loads: up to 80 lbs. ▪ Speeds: up to 90 fpm
RBM 2045 Lift and Transfer		
	<ul style="list-style-type: none"> ▪ Space saving powered roller conveyor design ▪ 24 VDC powered roller ▪ Includes control card and extension cable ▪ Rollers are 1.9-inch diameter ▪ Pneumatic lifting movement ▪ Guidance using linear bearings and guide rods ▪ Bi-directional ▪ Standard sensing (optional) 	<ul style="list-style-type: none"> ▪ Loads: up to 80 lbs. ▪ Speeds: up to 90 fpm

versamove standard		
	Features	Technical Data
PE 2045 Lift and Locate		
	<ul style="list-style-type: none"> ▪ Positions and lifts a single pallet; via pneumatic cylinder and four (4) linear guides and bearings ▪ Includes a support plate for the pallet ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Repeat accuracy: ± 0.1 mm
HDE 2045 Lift and Rotate		
	<ul style="list-style-type: none"> ▪ For rotating as needed based on operation ▪ Low overall height ▪ Individual rotation speeds ▪ Pneumatic lifting and rotating movement ▪ Guidance using linear bearings and guide rods ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Loads: up to 80 lbs. ▪ Rotating movement: 90° and 180°
PA 2045 Lift and Locate		
	<ul style="list-style-type: none"> ▪ Positions and lifts a single pallet; via four pneumatic cylinders ▪ Pallet is supported on one side and located on the other side while it is lifted ▪ Features one round and one diamond shaped locating pin ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Repeat accuracy: ± 0.15 mm ▪ Positioning via locating bushings within the pallet in the X, Y and Z directions
HDE-E 2045 Electric Lift and Rotate		
	<ul style="list-style-type: none"> ▪ Low overall height ▪ Individual rotation speeds ▪ Pneumatic lifting and electric rotating movement ▪ Guidance using linear bearings and guide rods ▪ Cylinder sensing (optional) 	<ul style="list-style-type: none"> ▪ Loads: up to 80 lbs. ▪ Rotating movement: Any
WTZ 2045 Lift Gate Conveyor		
	<ul style="list-style-type: none"> ▪ Simple access to system interior via lift-gate conveyor ▪ Fast and safe maintenance ▪ Locking gas spring assisted ▪ Safety switch protects against unauthorized access (optional) 	<ul style="list-style-type: none"> ▪ Length: 1,500 mm ▪ Opening: 762 mm

	Features	Technical Data
KHL 2045 Vertical Transfer Unit		
	<ul style="list-style-type: none"> Designed to move pallets between multiple elevations Pneumatic, or electric, lifting and lowering options Adjustable vertical speed Features various conveyor types and options Polycarbonate or wire mesh safety guarding with an access door (optional) 	<ul style="list-style-type: none"> Loads: up to 160 lbs. Maximum vertical stroke, pneumatic version: 1,000 mm Maximum vertical stroke, electric version: 4,000 mm
SD Damping Pallet Stop		
	<ul style="list-style-type: none"> Typically used for vibration free damping Damped pneumatic stop Single or dual-acting Direct installation on conveyor frame Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Total load is dependent on stop version and conveyor speed Working pressure: treated compressed air, 4 - 8 bar
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
RS Return Stop		
	<ul style="list-style-type: none"> Reduces pallet settling time Maintenance free Spring force in upper position 2.2 N Spring force in lower position 9.1 N 	<ul style="list-style-type: none"> Minimum pallet weight: 6.6 lbs. Maximum pallet weight: 80 lbs.
AD Angle Damper		
	<ul style="list-style-type: none"> Used with perpendicular pallet transfers Pneumatic damper Very soft damping Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Working pressure: treated compressed air, 4 - 8 bar

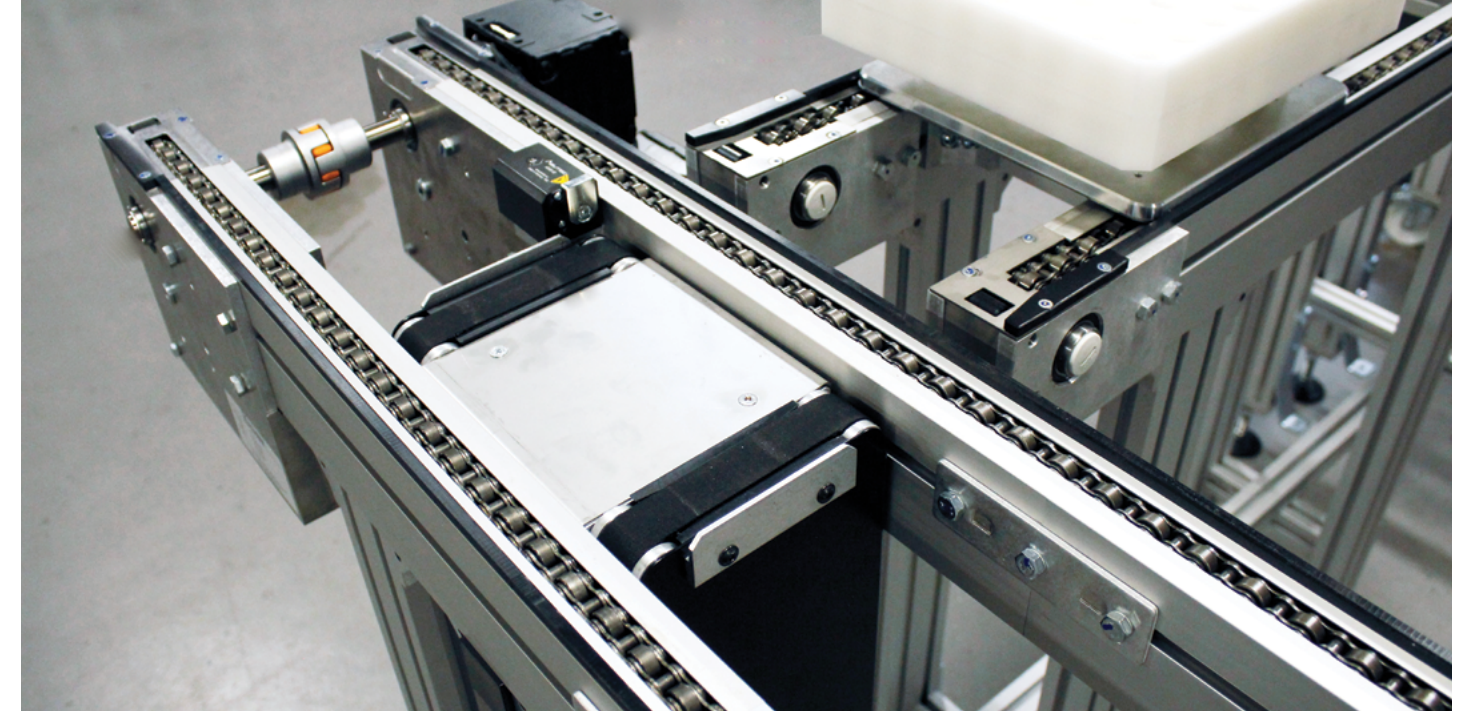
	Features	Technical Data
Chain Lubrication Station		
	<ul style="list-style-type: none"> For use with FPF-P 2045 flat top chain conveyor and SRF-P 2045 accumulating chain conveyor LCD display for quick easy control of settings Push button settings for simple programming Pressure build-up to 6 bar allows remote mounting of the unit (one per conveyor) Includes charged oil cartridge from mk 	<ul style="list-style-type: none"> Reliable, precise lubricant discharge 120 cm³ Battery operated, however cable also included for external power supply via machine PLC (15-30 VDC-200 mA) Operating temperature: -10°C to +50°C



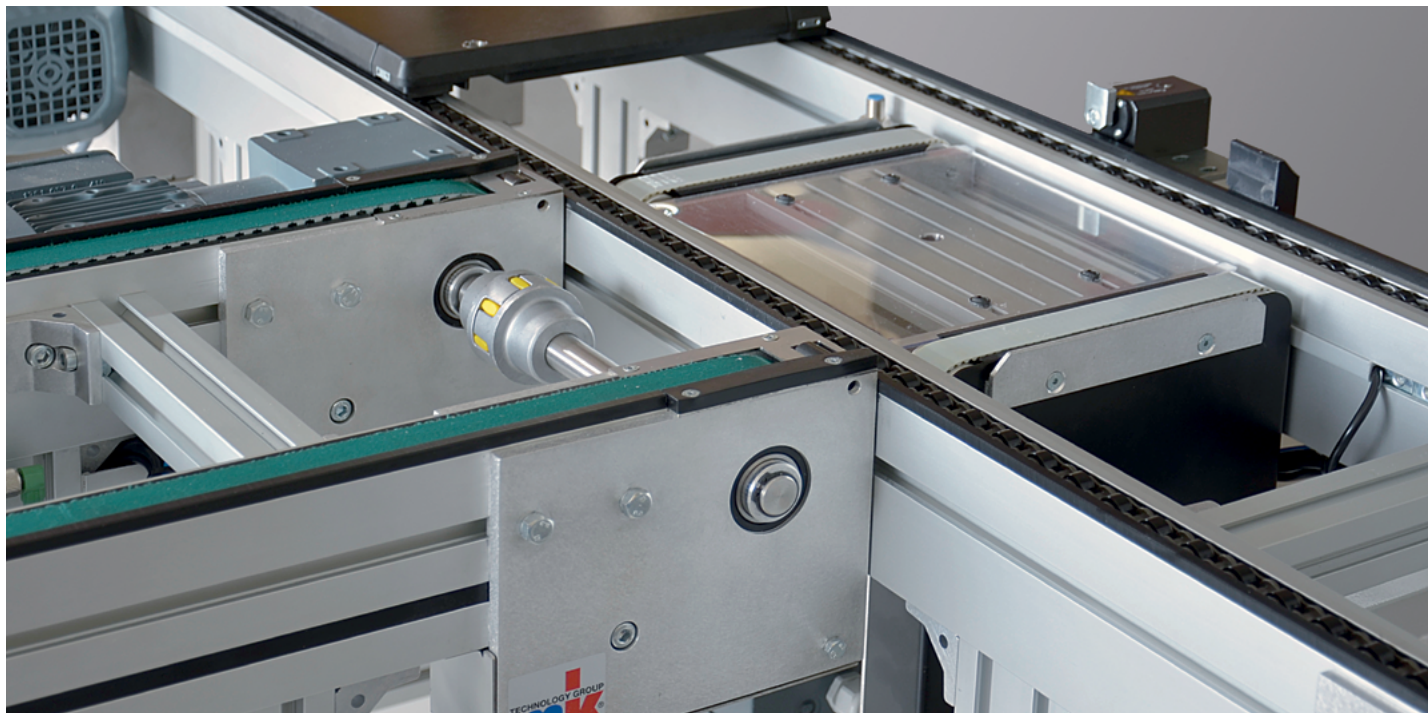
VersaMove Standard FPF-P 2045 Flat Top Chain Conveyors can be made with curve sections, which maintain the leading edge of the pallet.



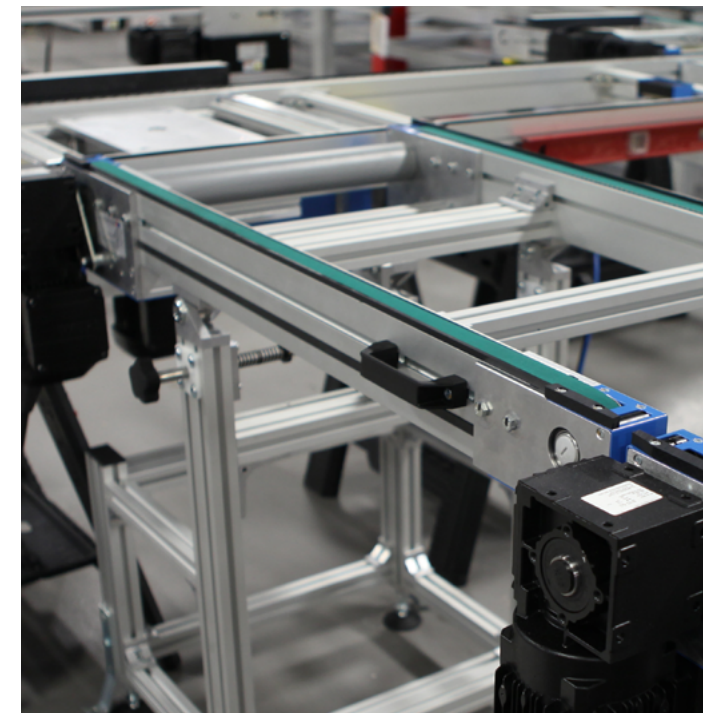
PE 2045 Lift and Locate with an SD Damping Pallet Stop mounted between the lanes of a FPF-F 2045 Flat Top Chain Conveyor.



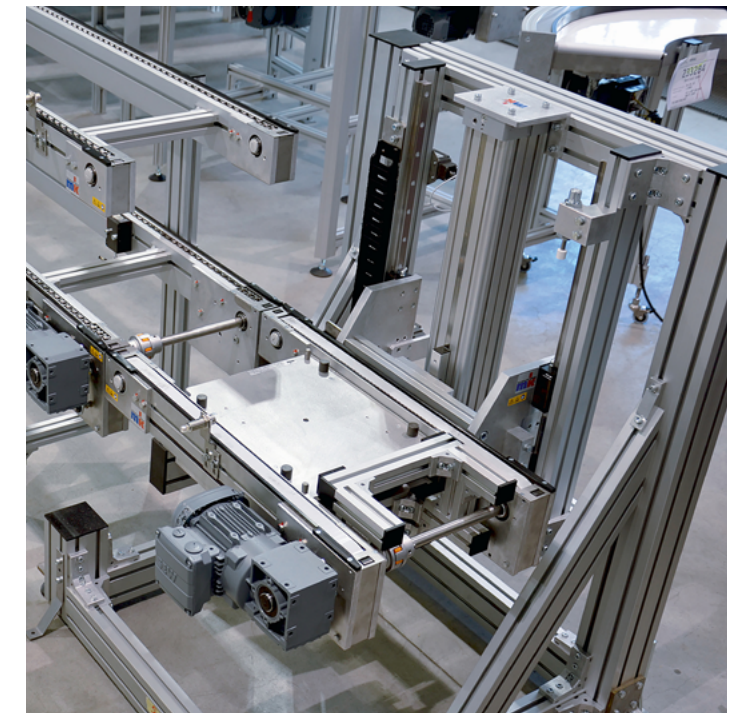
A custom pallet travels on a SRF-P 2045, after transferring at a right angle off another SRF-P 2045 via a Lift and Transfer.



HQZ 2045 Lift and Transfer designed to transfer a pallet from a ZRF-P 2045 Timing Belt Conveyor to a SRF-P 2045 Accumulating Roller Chain unit.



WZT 2045 Lift Gate Conveyor provides access to the inside of this VersaMove Standard conveyor system.

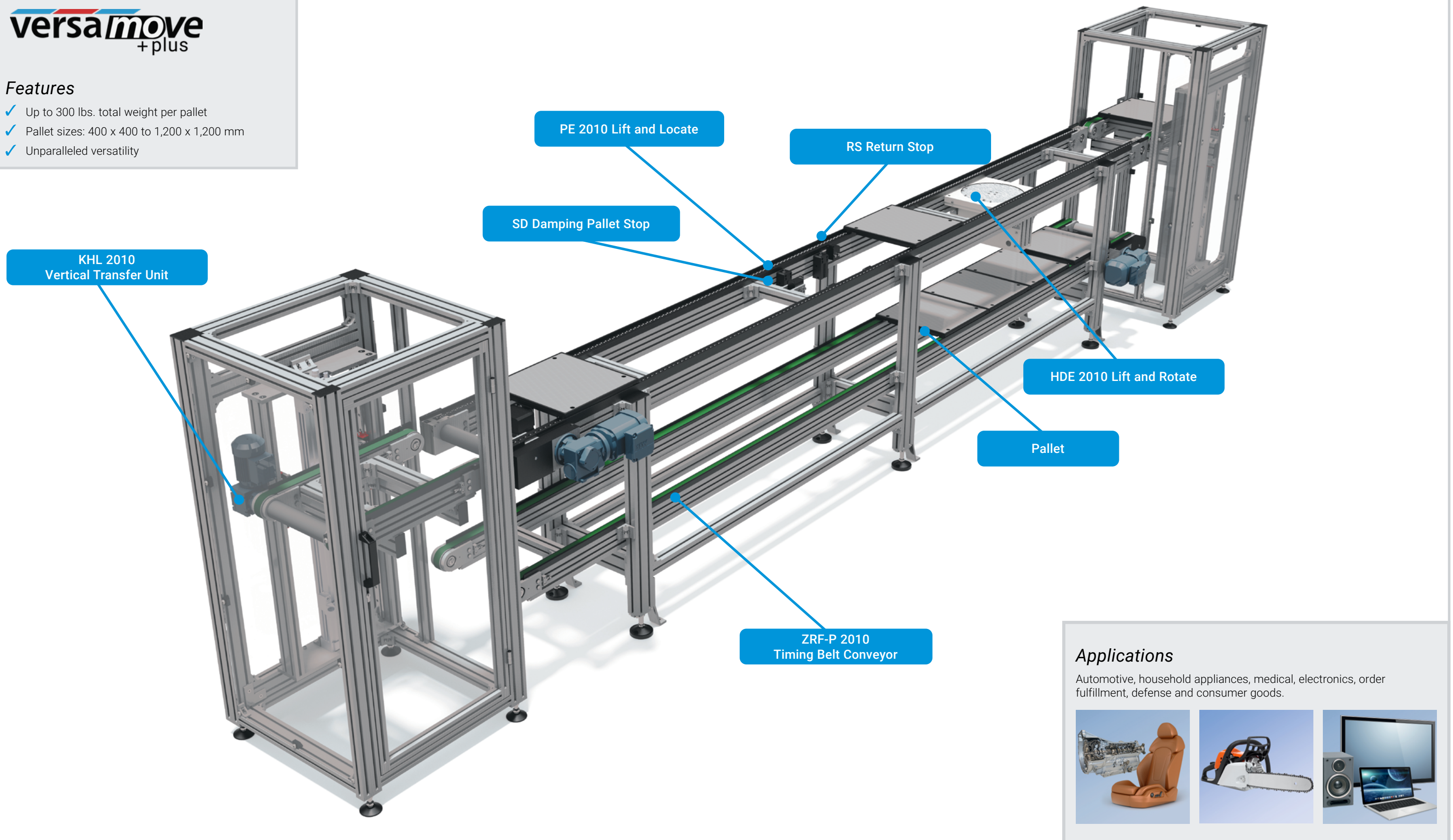


Custom configurations, such as this Vertical Transfer Unit with an integrated PE 2045 Lift and Locate module, are possible with the mk.

versamove
+plus

Features

- ✓ Up to 300 lbs. total weight per pallet
- ✓ Pallet sizes: 400 x 400 to 1,200 x 1,200 mm
- ✓ Unparalleled versatility



KHL 2010
Vertical Transfer Unit

SD Damping Pallet Stop

PE 2010 Lift and Locate

RS Return Stop

HDE 2010 Lift and Rotate

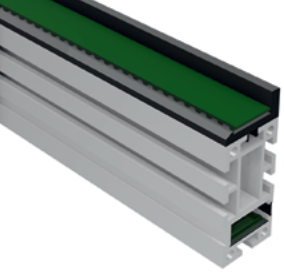
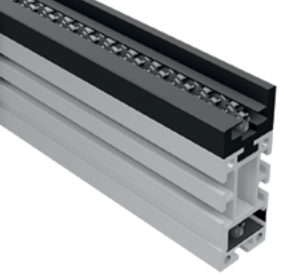
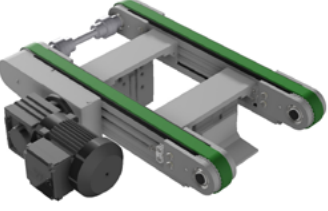
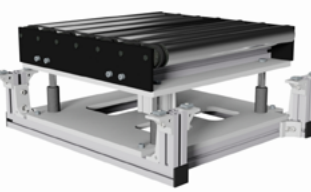

Pallet




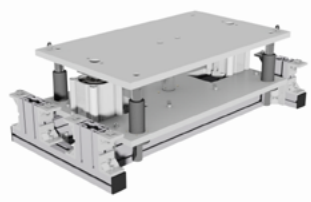
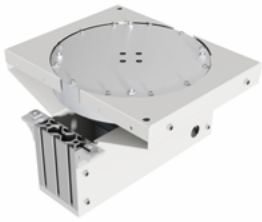
ZRF-P 2010
Timing Belt Conveyor





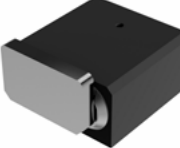
Applications


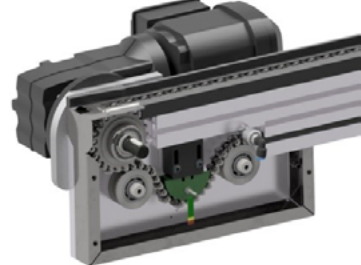
Automotive, household appliances, medical, electronics, order fulfillment, defense and consumer goods.

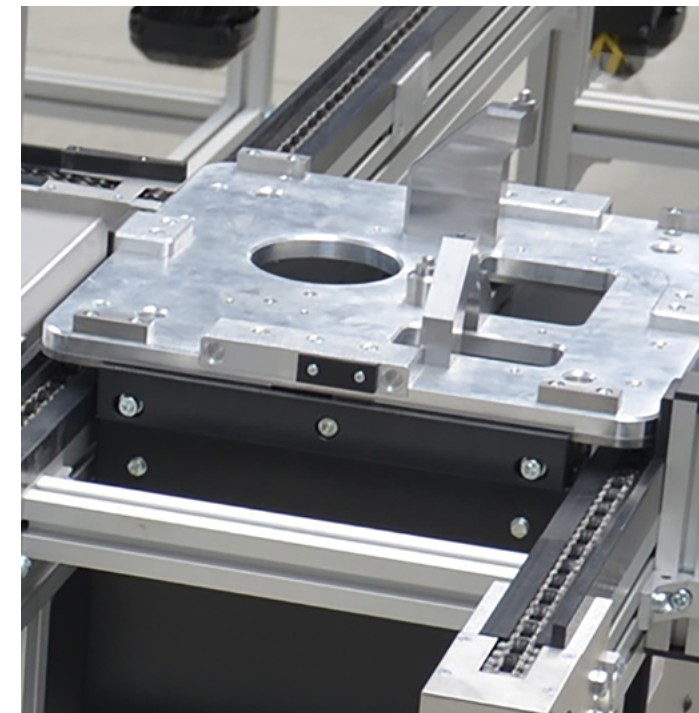


	Features	Technical Data
ZRF-P 2010 Timing Belt Conveyor		
	<ul style="list-style-type: none"> Designed for indexing applications and continuous movement Profile is 50 x 100 mm 32 mm wide timing belt Coated timing belts for long life Anti-static wearstrip (optional) 	<ul style="list-style-type: none"> Length: 500 to 15,000 mm Loads: up to 800 lbs./drive Speeds: up to 90 fpm
SRF-P 2010 Accumulating Roller Chain Conveyor		
	<ul style="list-style-type: none"> Ideally suited for accumulating operation Profile is 50 x 100 mm ½-inch pitch accumulating roller chain Accumulating rollers available in steel and plastic Automatic chain tensioning (optional) Anti-static wearstrip (optional) Touch safe chain (optional) 	<ul style="list-style-type: none"> Length: 500 to 20,000 mm Loads: up to 2,000 lbs./drive Speeds: up to 90 fpm
HQZ 2010 Lift and Transfer		
	<ul style="list-style-type: none"> Conventional right angle transfer 32 mm wide timing belt Pneumatic lifting movement Guidance using linear bearings and guide rods Bi-directional Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 300 lbs. Speeds: up to 90 fpm
RBM 2010 Lift and Transfer		
	<ul style="list-style-type: none"> Space saving powered roller conveyor design 24 VDC powered roller Includes control card and extension cable Rollers are 1.9-inch diameter Pneumatic lifting movement Guidance using linear bearings and guide rods Bi-directional Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 300 lbs. Speeds: up to 90 fpm
HQZ-D 2010 Dual Lift and Transfer		
	<ul style="list-style-type: none"> Free standing module, mounted between the lanes of two independent conveyors Designed for right angle transfers 25 mm wide timing belts Guidance using linear bearings and guide rods Bi-directional Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 300 lbs. Speeds: up to 90 fpm

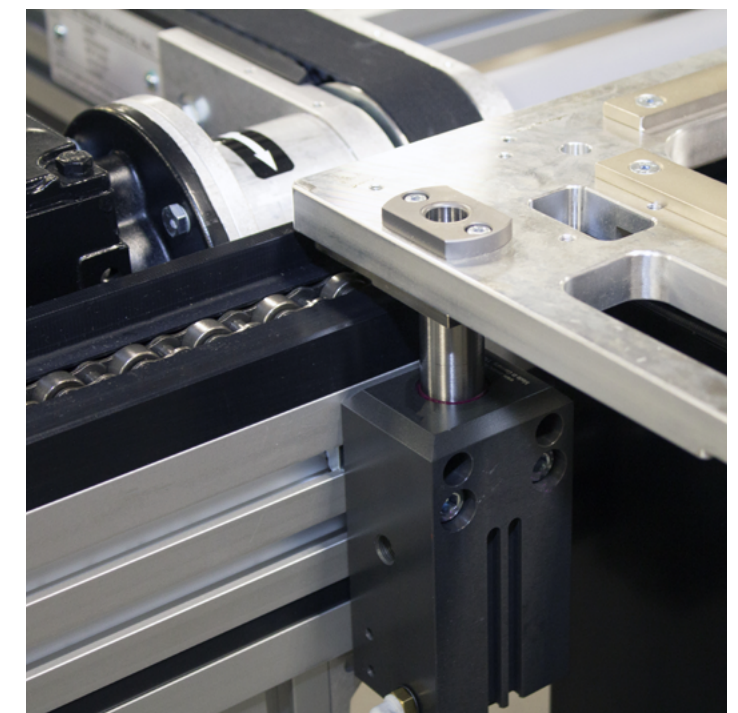
	Features	Technical Data
KHL 2010 Vertical Transfer Unit		
	<ul style="list-style-type: none"> Designed to move pallets between multiple elevations Pneumatic, or electric, lifting and lowering options Adjustable vertical speed Features various conveyor types and options Polycarbonate or wire mesh safety guarding with an access door (optional) 	<ul style="list-style-type: none"> Loads: up to 300 lbs. Maximum vertical stroke, pneumatic version: 1,000 mm Maximum vertical stroke, electric version: 4,000 mm
WTZ 2010 Lift Gate Conveyor		
	<ul style="list-style-type: none"> Simple access to system interior via lift-gate conveyor Fast and safe maintenance Locking gas spring assisted Safety switch protects against unauthorized access (optional) 	<ul style="list-style-type: none"> Length: 1,500 mm Opening: 762 mm
PA 2010 Lift and Locate		
	<ul style="list-style-type: none"> Positions and lifts a single pallet; via four pneumatic cylinders Pallet is supported on one side and located on the other side while it is lifted Features one round and one diamond shaped locating pin Cylinder sensing (optional) 	<ul style="list-style-type: none"> Repeat accuracy: ± 0.15 mm Positioning via locating bushings within the pallet in the X, Y and Z directions
PE 2010 Lift and Locate		
	<ul style="list-style-type: none"> Positions and lifts a single pallet; via pneumatic cylinder and four (4) linear guides and bearings Includes a support plate for the pallet Cylinder sensing (optional) 	<ul style="list-style-type: none"> Repeat accuracy: ± 0.1 mm Positioning via locating bushings within the pallet in the X, Y and Z directions
HDE 2010 Lift and Rotate		
	<ul style="list-style-type: none"> For rotating as needed based on operation Low overall height Individual rotation speeds Pneumatic lifting and rotating movement Guidance using linear bearings and guide rods Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 300 lbs. Rotating movement: 90° and 180°

versamove +plus		
	Features	Technical Data
HDE-E 2010 Lift and Rotate		
	<ul style="list-style-type: none"> Pneumatic lifting with electric rotating movement Low overall height Individual rotation speeds Guidance using linear bearings and guide rods Standard sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 250 lbs. Rotating movement: Fixed predetermined intervals
SD Damping Pallet Stop		
	<ul style="list-style-type: none"> Typically used for vibration free damping Damped pneumatic stop Single or dual-acting Direct installation on conveyor frame Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Total load is dependent on stop version and conveyor speed Working pressure: treated compressed air, 4 - 8 bar
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
RS Return Stop		
	<ul style="list-style-type: none"> Reduces pallet settling time Maintenance free Spring force in upper position 2.2 N Spring force in lower position 9.1 N 	<ul style="list-style-type: none"> Minimum pallet weight: 6.6 lbs. Maximum pallet weight: 300 lbs.
AD Angle Damper		
	<ul style="list-style-type: none"> Used with perpendicular pallet transfers Pneumatic damper Very soft damping Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Working pressure: treated compressed air, 4 - 8 bar

versamove +plus		
	Features	Technical Data
Chain Lubrication Station		
	<ul style="list-style-type: none"> For use with SRF-P 2010 accumulating roller chain conveyor LCD display for quick easy control of settings Push button settings for simple programming Pressure build-up to 6 bar allows remote mounting of the unit (one per conveyor) Includes charged oil cartridge from mk 	<ul style="list-style-type: none"> Reliable, precise lubricant discharge 120 cm³ Battery operated, however cable also included for external power supply via machine PLC (15-30 VDC-200 mA) Operating temperature: -10°C to +50°C
Tensioning Device		
	<ul style="list-style-type: none"> For use with SRF-P 2010 accumulating roller chain conveyor End drive with integrated auto-tensioning of the conveyor chain Includes shaft guard and drive covers for improved protection and easy access to chain connecting link Allows for conveyors to be placed touching end-to-end 	<ul style="list-style-type: none"> Spring loaded indicator rod works with color coded sticker to visually indicate chain wear Inductive 8 mm proximity sensors included, PNP or NPN to signal to PCL the required chain maintenance (remove link or replace chain) Includes provisions for chain lubrication station (sold separate)



Custom pallets can be supplied by mk North America, as shown in this example on an Accumulating Roller Chain Conveyor.



A detailed look at a locating pin within the PA 2010 Lift and Locate engaging with the bushing on the pallet.



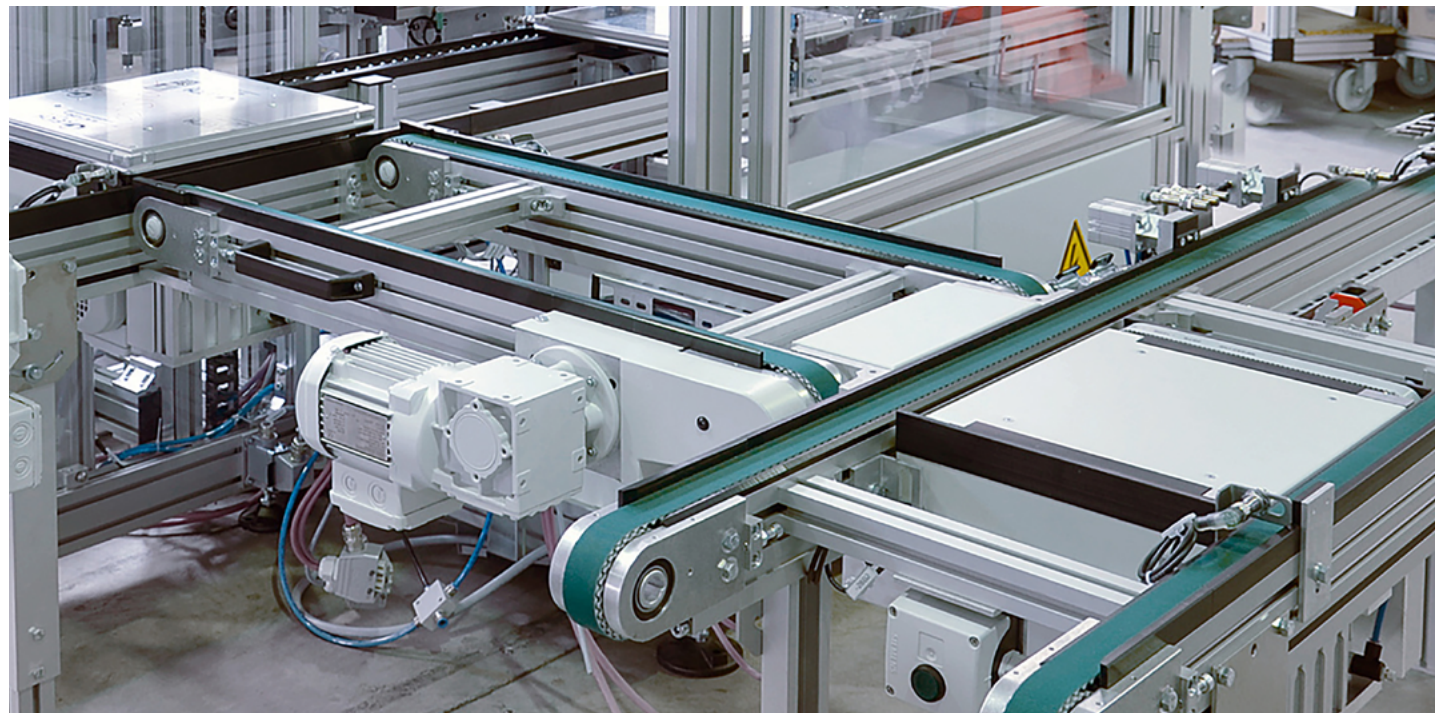
Lift and Transfer Conveyors are typically used to move pallets off the main line and onto spur lines to operators.



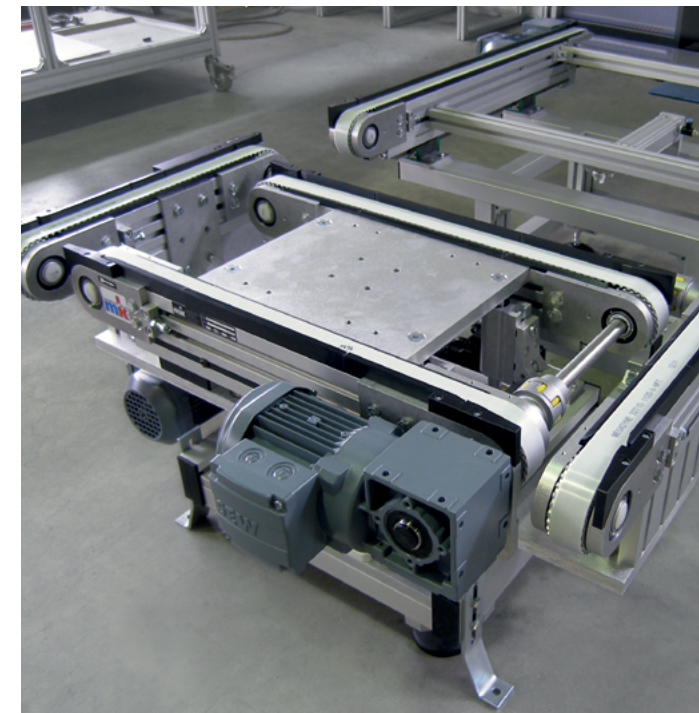
KHL 2010 Vertical Transfer Unit, with optional guarding, is used to move pallets between various elevations.



SRF-P 2010 main line Accumulating Roller Chain Conveyors, with ZRF-P 2010 Timing Belt Conveyor, bi-directional spur conveyors.



A VersaMove Plus system featuring a Timing Belt and an Accumulating Roller Chain conveyors, and a variety of modules including a WTZ 2010 Lift Gate.



An HQZ 600 Lift and Transfer is mounted into a short section of a ZRF-P 2010 Timing Belt Conveyor.

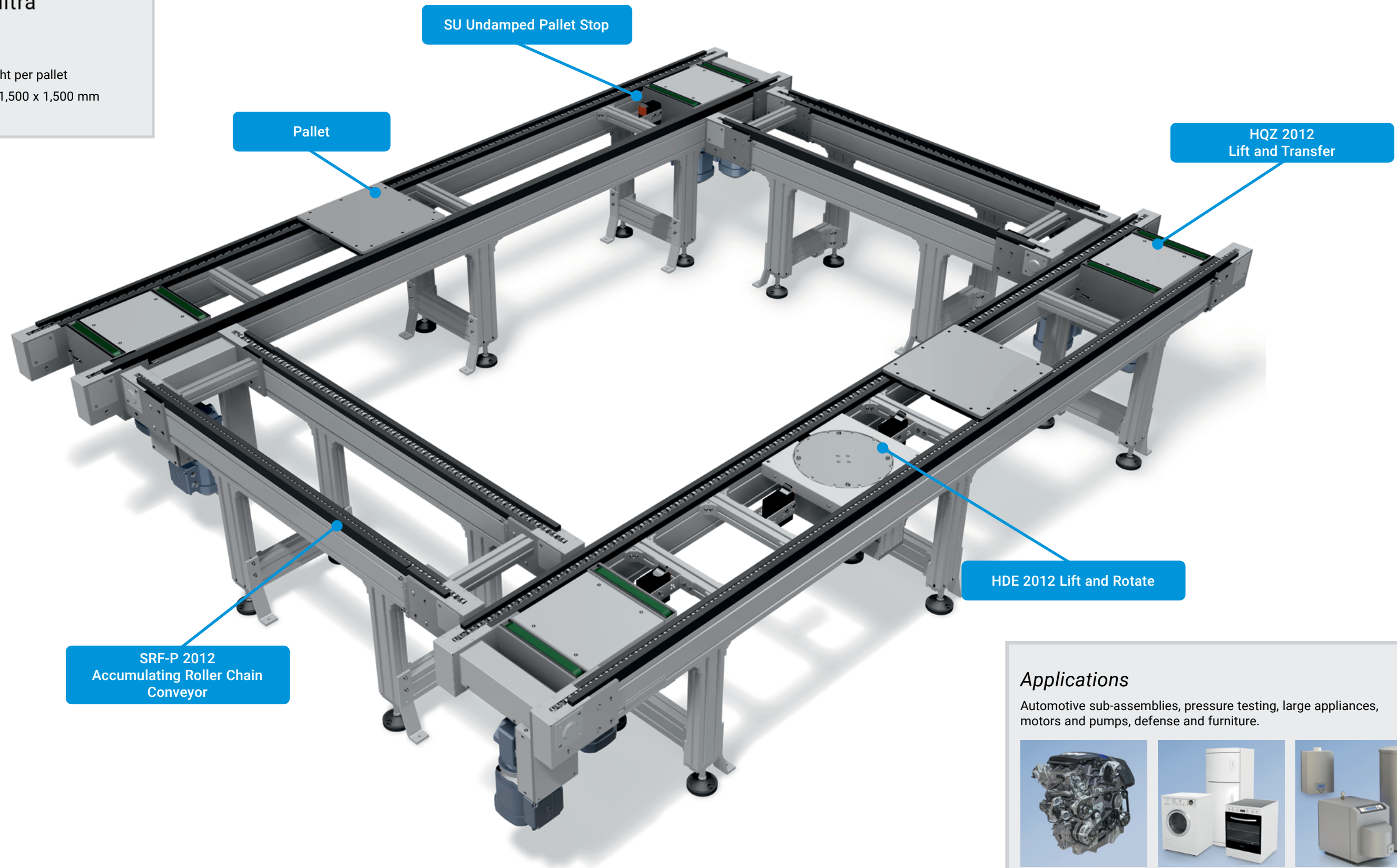


mk is able to accommodate many customizations including custom transfers, such as this Dual Lift and Transfer.

versamove
ultra

Features

- ✓ Up to 1,200 lbs. total weight per pallet
- ✓ Pallet sizes: 640 x 640 to 1,500 x 1,500 mm
- ✓ Rugged and dependable




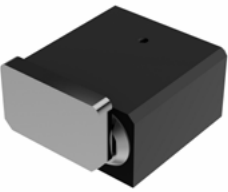

Applications

Automotive sub-assemblies, pressure testing, large appliances, motors and pumps, defense and furniture.



	Features	Technical Data
ZRF-P 2012 Timing Belt Conveyor		
	<ul style="list-style-type: none"> Designed for indexing applications and continuous movement Profile is 80 x 80 mm 60 mm wide timing belt Coated timing belts for long life Anti-static wearstrip (optional) 	<ul style="list-style-type: none"> Length: 1,000 to 15,000 mm Loads: up to 1,500 lbs./drive Speeds: up to 80 fpm
SRF-P 2012 Accumulating Roller Chain Conveyor		
	<ul style="list-style-type: none"> Ideally suited for accumulating operation Profile is 60 x 135 mm 3/4-inch pitch accumulating roller chain Accumulating rollers available in steel and plastic Automatic chain tensioning Anti-static wearstrip (optional) 	<ul style="list-style-type: none"> Length: 1,000 to 20,000 mm Loads: up to 3,500 lbs./drive Speeds: up to 80 fpm
HQZ 2012 Lift and Transfer		
	<ul style="list-style-type: none"> Heavy duty right angle transfer 60 mm wide timing belt Pneumatic lifting movement Guidance using linear bearings and guide rods Bi-directional Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 1,200 lbs. Speeds: up to 80 fpm
RBM 2012 Lift and Transfer		
	<ul style="list-style-type: none"> Heavy duty powered roller conveyor design 24 VDC powered roller Includes control card and extension cable Rollers are 1.9-inch diameter Pneumatic lifting movement Guidance using linear bearings and guide rods Bi-directional Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 1,200 lbs. Speeds: up to 80 fpm
KHL 2012 Vertical Transfer Unit		
	<ul style="list-style-type: none"> Designed to move pallets between multiple elevations Pneumatic, or electric, lifting and lowering options Adjustable vertical speed Features various conveyor types and options Polycarbonate or wire mesh safety guarding with an access door (optional) 	<ul style="list-style-type: none"> Loads: up to 1,200 lbs. Maximum vertical stroke, pneumatic version: 1,000 mm Maximum vertical stroke, electric version: 4,000 mm

	Features	Technical Data
PA 2012 Lift and Locate		
	<ul style="list-style-type: none"> Positions and lifts a single pallet; via four pneumatic cylinders Pallet is supported on one side and located on the other side while it is lifted Features one round and one diamond shaped locating pin Cylinder sensing (optional) 	<ul style="list-style-type: none"> Repeat accuracy: ± 0.3 mm Positioning via locating bushings within the pallet in the X, Y and Z directions
PE 2012 Lift and Locate		
	<ul style="list-style-type: none"> Positions and lifts a single pallet; via pneumatic cylinder and four (4) linear guides and bearings Includes a support plate for the pallet Cylinder sensing (optional) 	<ul style="list-style-type: none"> Repeat accuracy: ± 0.2 mm Positioning via locating bushings within the pallet in the X, Y and Z directions
HDE-E 2012 Lift and Rotate		
	<ul style="list-style-type: none"> Fixed position cam driven motion indexer on a pneumatic vertical actuator Guidance using linear bearings and guide rods Individual rotating speeds Cylinder sensing (optional) 	<ul style="list-style-type: none"> Loads: up to 1,200 lbs. High position repeatability
SD Damping Pallet Stop		
	<ul style="list-style-type: none"> Typically used for vibration free damping Damped pneumatic stop Single or dual-acting Direct installation on conveyor frame Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Total load is dependent on stop version and conveyor speed Working pressure: treated compressed air, 4 - 8 bar
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

	Features	Technical Data
RS Return Stop		
	<ul style="list-style-type: none"> Reduces pallet settling time Maintenance free Spring force in upper position 2.2 N Spring force in lower position 9.1 N 	<ul style="list-style-type: none"> Minimum pallet weight: 6.6 lbs. Maximum pallet weight: 1,200 lbs.
AD Angle Damper		
	<ul style="list-style-type: none"> Used with perpendicular pallet transfers Pneumatic damper Very soft damping Maintenance free Pneumatically adjustable damping 	<ul style="list-style-type: none"> Working pressure: treated compressed air, 4 - 8 bar
Chain Lubrication Station		
	<ul style="list-style-type: none"> For use with SRF-P 2012 accumulating roller chain conveyor LCD display for quick easy control of settings Push button settings for simple programming Pressure build-up to 6 bar allows remote mounting of the unit (one per conveyor) Includes charged oil cartridge from mk 	<ul style="list-style-type: none"> Reliable, precise lubricant discharge 120 cm³ Battery operated, however cable also included for external power supply via machine PLC (15-30 VDC-200 mA) Operating temperature: -10°C to +50°C



Conveyor Solutions for EV Battery Production

Vehicle manufactures, like many manufacturers, are faced with the everyday challenges of increasing quality while also increasing throughput.

Electric vehicle (EV), and EV-battery manufactures face the same challenges, in addition to challenges unique to their industry subset - such as how to streamline production for all phases of complex electric battery packs. These battery packs are large, irregular shaped (narrow and wide at the same time), and heavy.

Just as mk's VersaMove line is well-suited for traditional vehicle manufacturing, VersaMove is ideal for EV and EV-battery manufacturing. For EV-battery assembly, a separate pallet is not needed – *the EV-battery enclosure is the pallet.*



Anti-Static Options

- ✓ Anti-static wearstips
- ✓ Anti-static timing belt options



High Load Capacity

- ✓ Loads up to 1,200 lbs. per pallet/product, higher upon request
- ✓ Conveyor capacity up to 3,500 lbs., higher upon request



Sizing

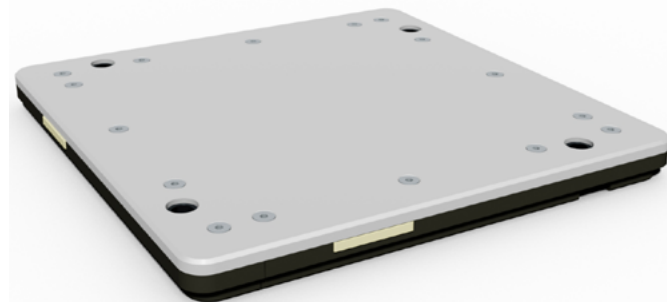
- ✓ Capable of carrying pallets/products up to 1,500 x 1,500 mm, higher on request
- ✓ Long and narrow pallets/product are no problem



Standard Workpiece Pallets

VersaMove pallets act as carriers for workpieces 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.

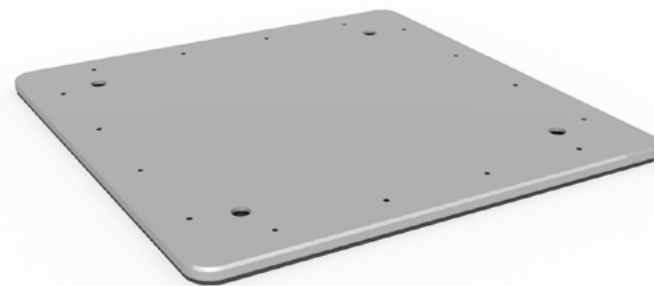
Framed Pallets



Framed Pallet Features and Benefits:

- ✓ For VersaMove Standard only
- ✓ A variety of sizes: 240 x 240 to 400 x 400 mm
- ✓ Anti-static wear surface in contact with conveyor
- ✓ A wide variety of surface plate materials
- ✓ Surface plates can be machined to accept fixtures and additional tooling
- ✓ Pallets can be stopped on any edge making it easy to accumulate, queue and singulate pallets
- ✓ Pallets are equipped with sensing features and are RFID tag ready

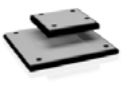
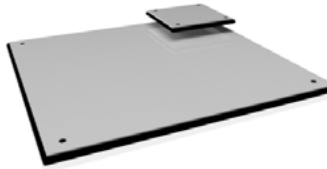
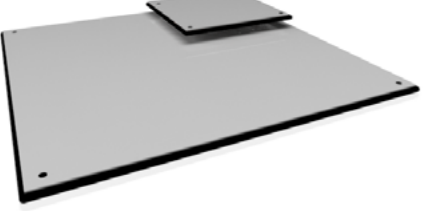
Single-piece Pallets



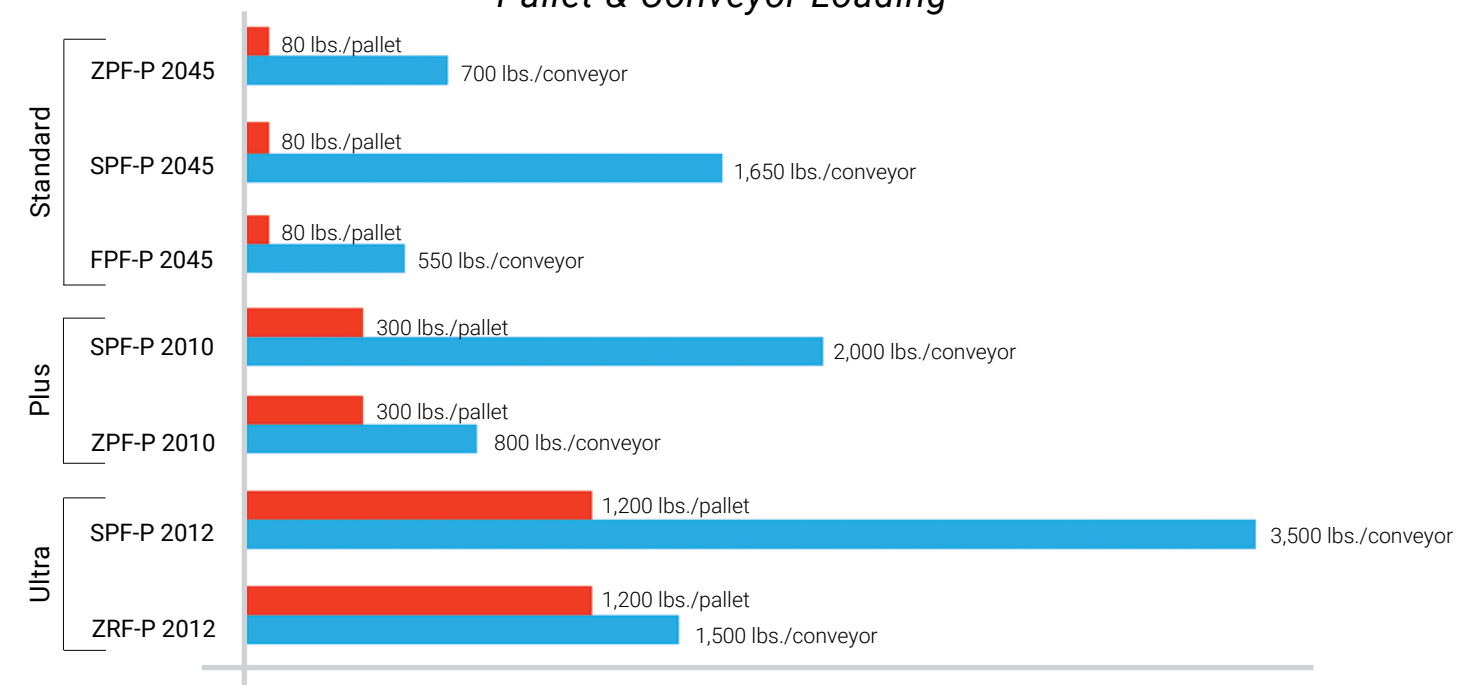
Single-piece Pallet Features and Benefits:

- ✓ Standard material is aluminum cast plate
- ✓ A variety of thicknesses and finishes are available
- ✓ Features rounded corners and chamfered edges
- ✓ Tool steel wear strips on the bottom of the pallet
- ✓ Works in conjunction with any of the mk pallet handling system modules
- ✓ Reinforced strike plate area for interaction with stopping devices
- ✓ Easily machined to accept fixtures and tooling
- ✓ Pallets can be equipped with a variety of features including bumpers, sensing features and RFID tag locations.
- ✓ Custom machining available

Pallet Sizes & Details

Standard	Plus	Ultra
<i>Pallet models are to scale.</i>		
<ul style="list-style-type: none"> ✓ Minimum: 240 x 240 mm 	<ul style="list-style-type: none"> ✓ Minimum: 400 x 400 mm 	<ul style="list-style-type: none"> ✓ Minimum: 640 x 640 mm 
<ul style="list-style-type: none"> ✓ Maximum: 400 x 400 mm 	<ul style="list-style-type: none"> ✓ Maximum: 1,200 x 1,200 mm 	<ul style="list-style-type: none"> ✓ Maximum: 1,500 x 1,500 mm
<ul style="list-style-type: none"> ✓ Framed or Single-piece pallets 	<ul style="list-style-type: none"> ✓ Single-piece pallets 	<ul style="list-style-type: none"> ✓ Single-piece pallet
<ul style="list-style-type: none"> ✓ Single piece pallet standard thickness options: 5/8", 1/2" and 3/4" ✓ ATP-5 Aluminum jig plate, with a flatness accuracy of 0.005" over 12" ✓ Wearstrips, for use with steel chain, 0.125" A2 tool-steel ✓ Bumpers, optional and for accumulation, polyurethane ✓ Strike plates, optional for stop interface, Steel (zinc plated) ✓ Bushings, for locating, steel, flanged (screwed in) featuring one circle and one slotted 		

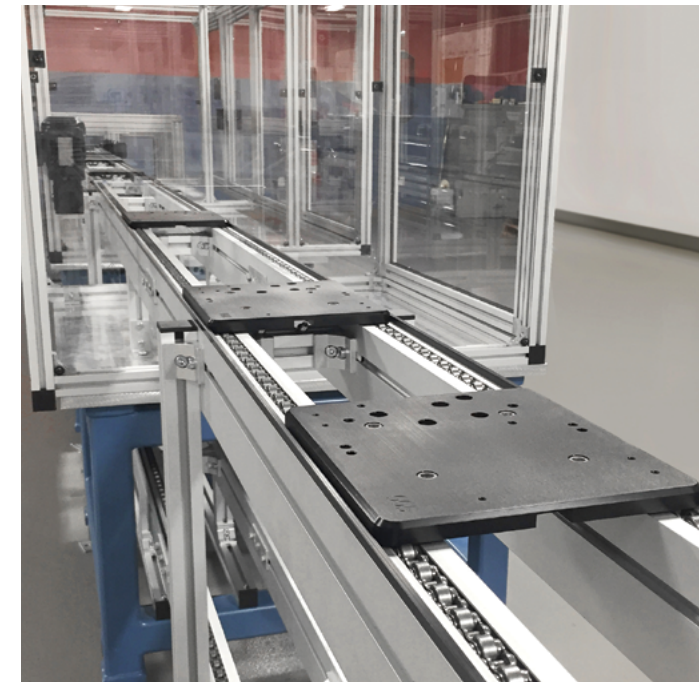
Pallet & Conveyor Loading



Application Examples



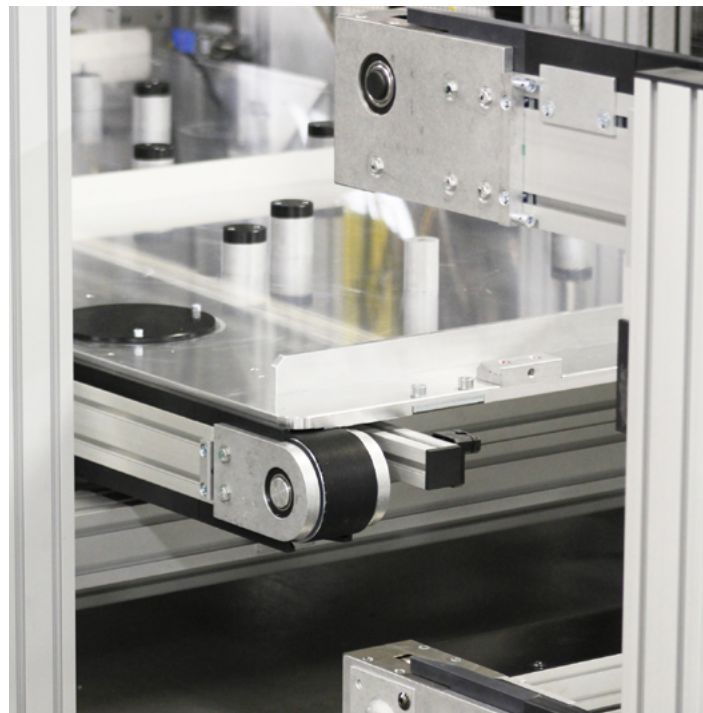
A ZRF-P 2040 Timing Belt Conveyor with an SRF-P 2012 Accumulating Roller Chain Conveyor receive pallets from an RBM 2012 Lift and Transfer.



VersaMove pallet-handling systems from mk can include safety guarding; custom size and material pallets are also available.



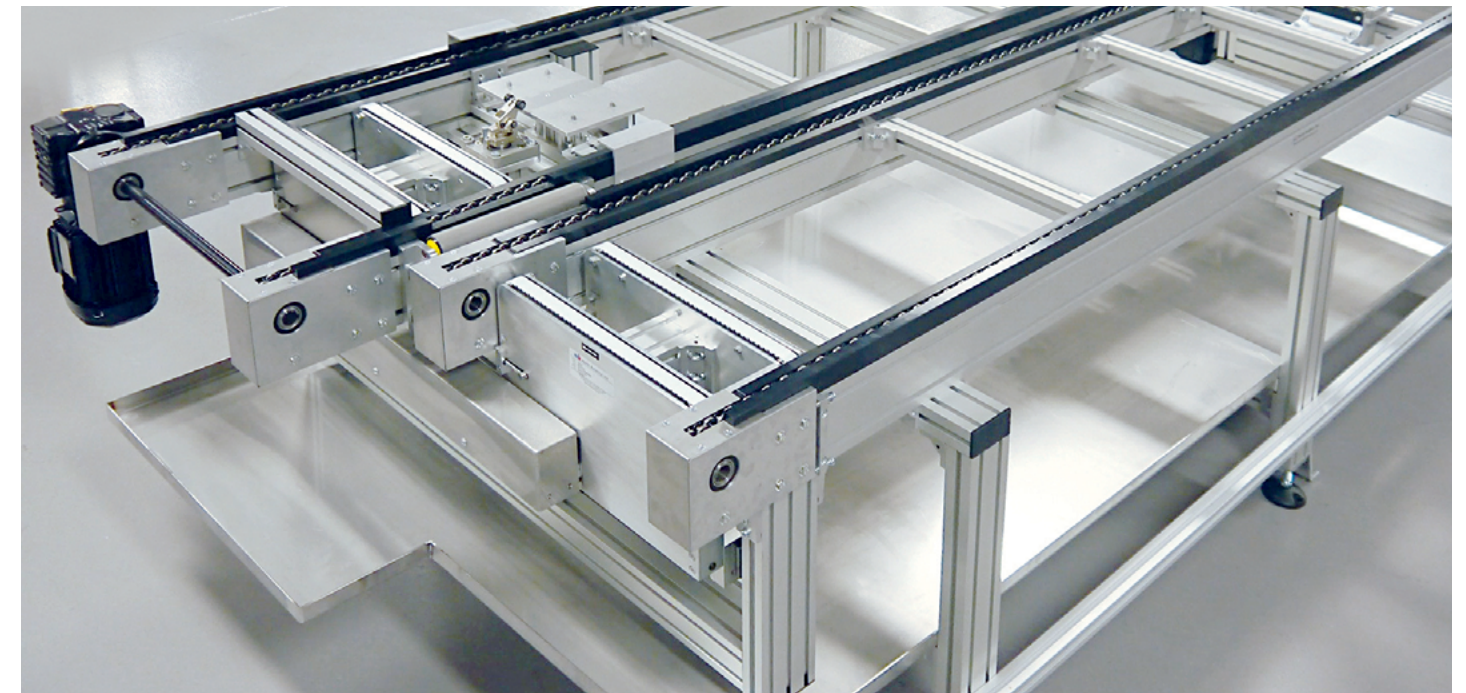
mk offers a wide variety of standard and custom Vertical Transfer Units, as well as electrically driven options.



A KHL 2012 Vertical Transfer unit lowers to deliver a pallet to an SRF-P 2012 Accumulating Roller Chain Conveyor.



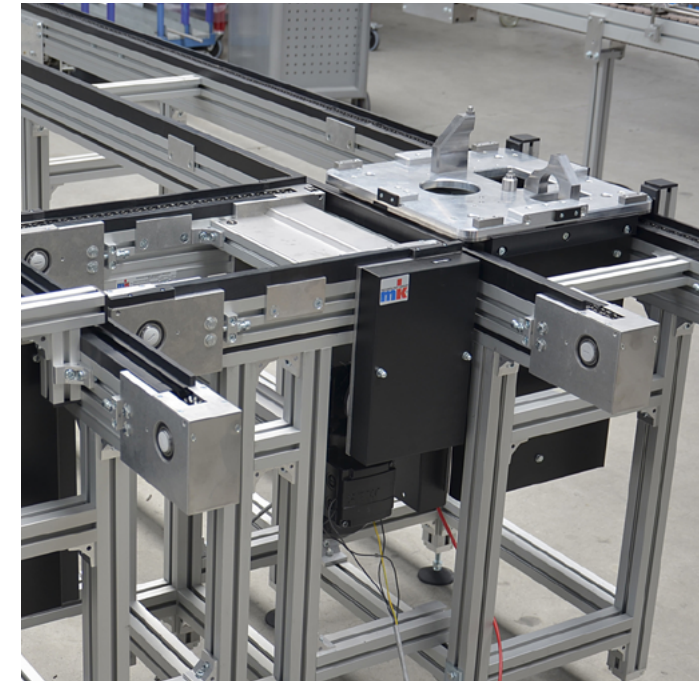
mk is able to accommodate customizations including Vertical Transfer Units featuring Roller Conveyors.



Stops and locating features, as well as product catch pans, are just some of the custom options available from mk.



mk assembles and tests all systems prior to shipping. FAT and installation assistance is available.



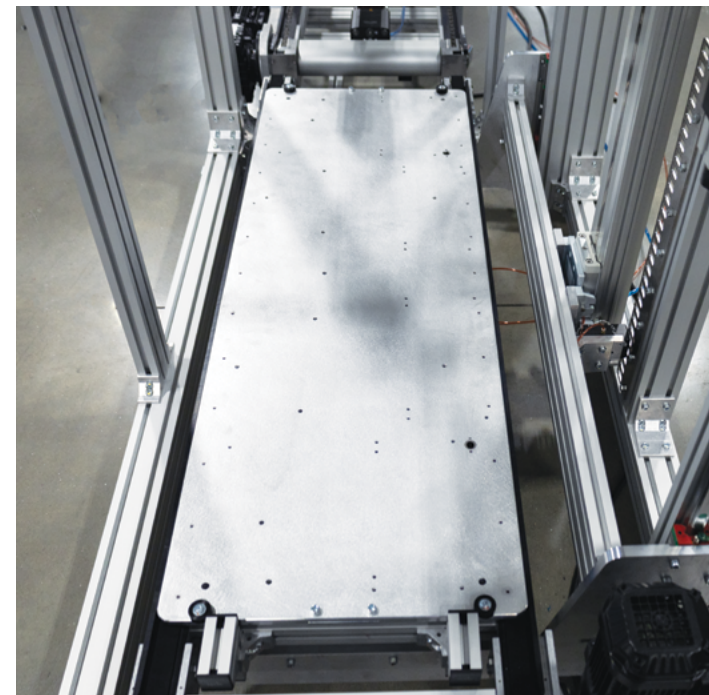
VersaMove conveyor systems can be designed in a variety of ways to meet specific custom requirements.



Different modules can be combined to make a single unique module, such as the Right Angle Transfer Unit, mounted within a Vertical Transfer Unit.



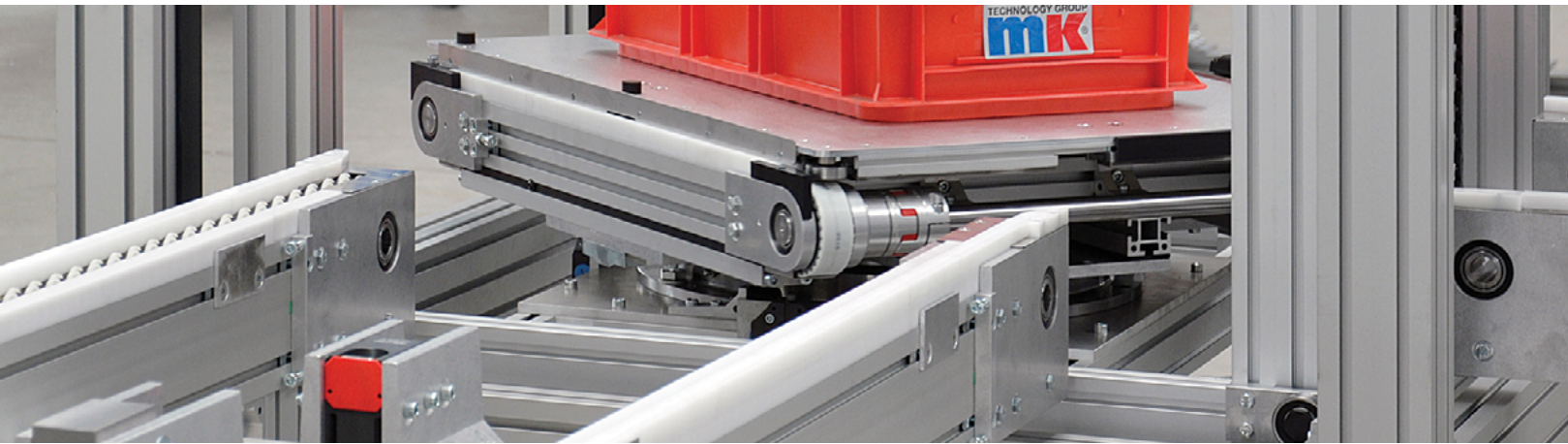
VersaMove Plus conveyor system with SRF-P 2010 main line conveyors, complete with RBM 2010 Lift and Transfer and spur conveyors.



VersaMove Ultra conveyor systems are ideal for conveying long and narrow pallets, and feature high load capacities.



VersaMove pallet-handling conveyors can be designed for product of various sizes – including tall products with an unusual center of gravity.



mk VersaMove Support

mk North America believes in supporting our customers from the initial inquiry through the delivery of their system. 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 of the entire system. mk assembles and tests all pallet-handling systems prior to shipping. mk also offers FAT, start up assistance and installation as well as all spare parts.

mk VersaMove 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 conveyor solution that meets your needs and keeps your business moving.

Options Include:

- ✓ Pallet sizes and materials
- ✓ A variety of sensing options
- ✓ Custom modules for positioning, transferring and locating
- ✓ Powder coating of sheet metal components in colors of your choosing
- ✓ Design and materials custom tailored for specific environments, such as clean-rooms and explosive areas
- ✓ Customer specific accessories such as drip pans, motor and controller types, chain lubrication stations, and many more

Find your local mk representative at
www.mkversamove.com/sales-support

versamove-E

Increase Throughput and Production
Decrease Energy Consumption and Noise Pollution

Compressed air plays a crucial role in many production facilities; yet compressed air is one of the most expensive forms of energy used in industrial settings. This is because approximately 90% of the energy used is converted to heat, while the remaining 10% is all that is actually converted into compressed air.

Further adding to the inefficiencies of compressed air, about 10% of the compressed air generated is lost to inefficiencies in the system. These inefficiencies are caused by leaks in the line, poorly designed and/or undersized systems, and operating the system at too high or too low pressure.

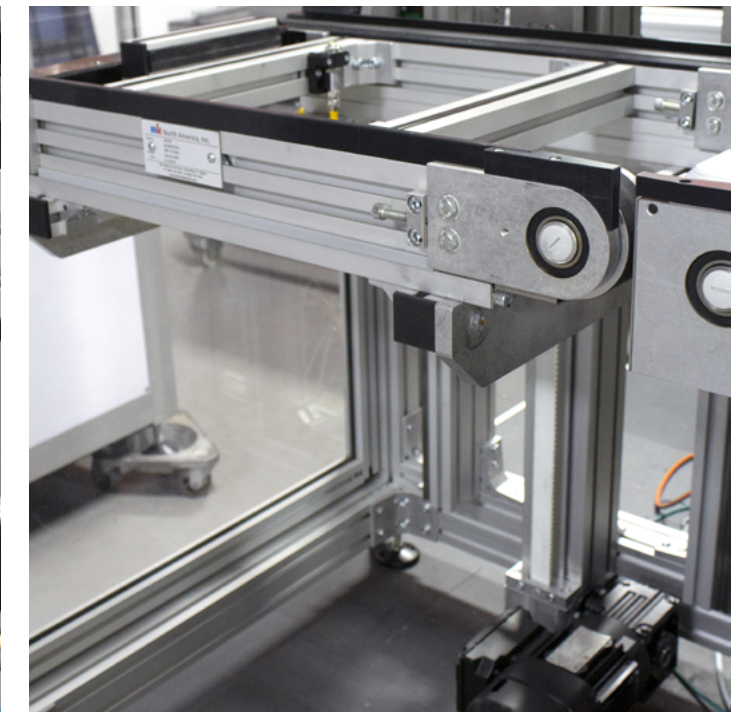
When pneumatic modules – such as stops, locates and vertical transfer units are replaced by electric ones less energy is required. Providing a greener, more cost effective, and smarter conveyor system.

Benefits

- ✓ Simplified Control
- ✓ Faster time-to-market
- ✓ Trouble-free operation
- ✓ Reduced programming
- ✓ Less spare parts to stock
- ✓ Streamlined commissioning

Fully Electric Modules Include

- ✓ Pallet Stops
- ✓ Lift & Locates
- ✓ Lift, Locate & Rotate
- ✓ Vertical Transfer Units

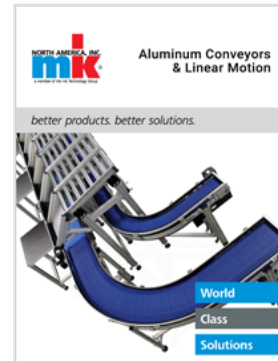


Our Other Products

Aluminum Conveyors

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.



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.



VersaFlex - Flexible Flat Top Chain Conveyors



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.
www.mkversaflex.com



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.



Extruded Aluminum Framing

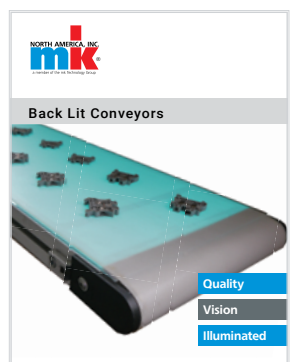
mk Aluminum Framing Systems feature over 200 different profile shapes and more than 2,700 connectors and system components, all engineered for a precise fit and maximum rigidity. Forget the hassles and inflexibility of steel – the welding, grinding, painting and waiting. mk offers you fast assembly,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



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.



www.mkversamove.com



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