

Overhead Monorail Conveyors



RAILTECHNIEK
VAN HERWIJNEN BV
SPECIALISTS IN OVERHEAD CONVEYORS

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What is a Monorail Conveyor System?



The manual monorail conveyor system is the simplest form of an overhead transport system. A wide range of components, including profiles, bends and switches, can be used to design a system to accompany various loads.

A monorail conveyor typically consists of an enclosed track with a trolley running through it. The products are hung directly from the trolley, with the possibility of using multiple trolley configurations and loadbars, depending on the production requirements of the system.

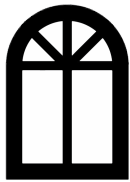
Moving the loads is a manual operation. However, it is possible to develop automated sections using chain conveyors and pneumatic pusher systems depending on the requirements of the production process.

The monorail system is modular making it easy to build and expand according to the customer's wishes. Components include drop sections for ergonomic loading, a chain transfer system, automatic loading and unloading zones, bridge cranes, rotation units and more.

Why Monorail Conveyor?

Advantages of a Monorail Conveyor

- Compact, bolted track design for easy assembly without welding
- Modular system with the highest quality moveable components inside the track, ensuring quality and reliability
- Long-lasting and robust machinery, with low maintenance
- Fully custom layouts are possible depending on the floor space requirements
- Advanced automatic PLC-based control system with touchscreen user interface and remote access
- Overhead conveyors leverage unused vertical space and save valuable floor space for other operations



Timber Industry

Some of our biggest clients come from the timber and wood manufacturing industry - since being able to utilize valuable floor space is crucial. More recently, automation has increased the ability to incorporate robots and track products during a production cycle, making processes like pretreatment and painting much easier, and increasing the overall efficiency of the production process.



Surface Treatment

Our conveyors are used widely across the surface treatment industry, carrying the product through flash-off zones, spray cabins, powder coating units, washing areas, pretreatment areas, drying and curing ovens.

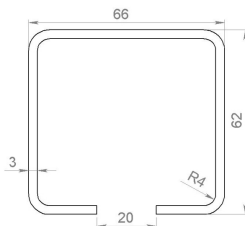
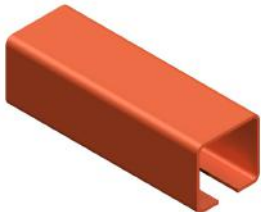


Other Industries

We provide custom solutions to clients in a variety of different industries ranging from bicycle manufacturers to foundries and timber factories. We are able to provide fully customized solutions to meet our clients' needs.

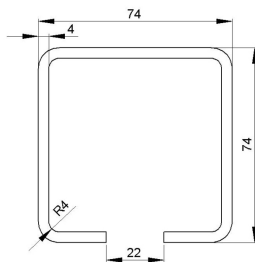
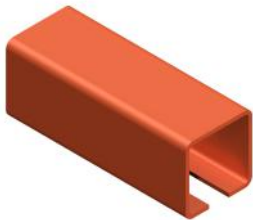
Railtechnik Monorail Conveyors

Monorail 230.000



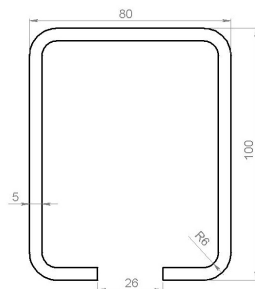
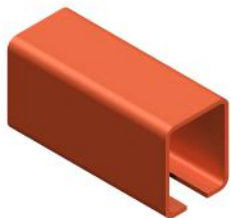
The monorail **230.000** is the smallest of our track offerings. It can handle a track load of 250kg/m | 168 lbs/ft and carry loads of up to 500 kg / 1102 lbs, depending on the trolley type used and product carrier configuration.

Monorail 240.000



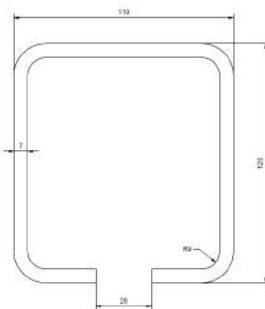
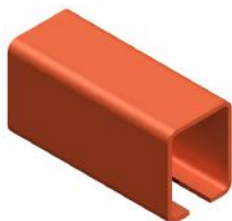
The monorail **240.000** can handle a track load of 500kg/m | 336 lbs/ft and carry loads of up to 1000 kg / 2205 lbs, depending on the trolley type used and product carrier configuration.

Monorail 250.000



The monorail **250.000** can handle a track load of 1000kg/m | 672 lbs/ft and carry loads of up to 2000 kg / 4409 lbs, depending on the trolley type used and product carrier configuration.

Monorail 260.000

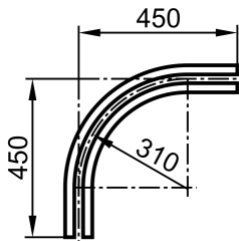


The monorail **260.000** is the biggest of our track offerings. It can handle a track load of 2000kg/m | 1344 lbs/ft and carry loads of up to 5000 kg / 11203 lbs, depending on the trolley type used and product carrier configuration.

Bends

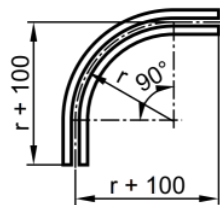
The standard track bends in a monorail system are supplied with a radius of 310 mm / 12.2". Upon request, the track bends can be manufactured with any other radius as needed.

The standard track bends are provided at both ends with a straight piece of track in order to ensure a perfect joining to the following straight track.



Standard 90° Bend

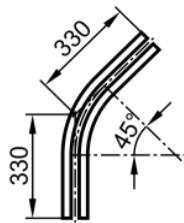
Offered in radius of 310 mm / 12.2"



Custom 90° Bend

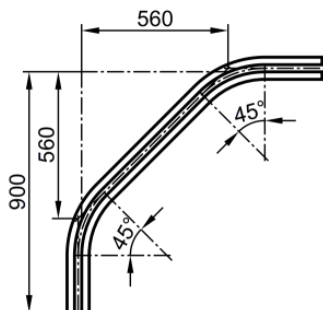
Offered in radii of:

400, 500, 600, 700, 800, 900, 1000 and 1200 mm
15.7, 19.7, 23.6, 27.6, 31.5, 35.4, 39.4, and 47.2"



Standard 45° Bend

Offered in radius of 310 mm / 12.2"



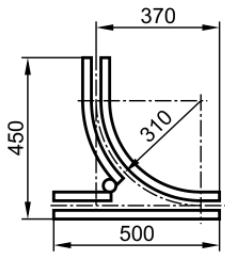
Standard 90° Bend (Lengthened)

Offered in radius of 310 mm / 12.2"

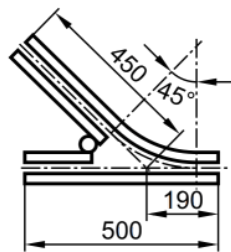
Switches

There are multiple switch options available depending on the requirements of the track installation. These include standard degree switches, Y switches, T switches and 3 way switches.

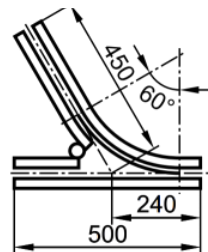
90° switch



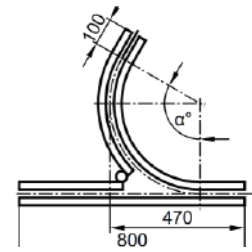
45° switch



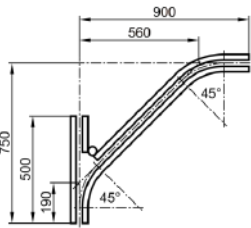
60° switch



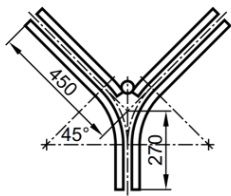
Special switch with any curve angle



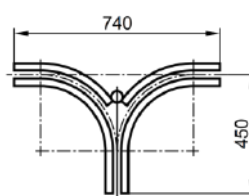
Lengthened 90° switch



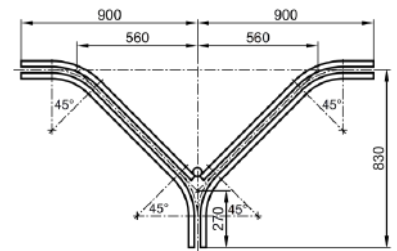
Y-switch 2 x 45°



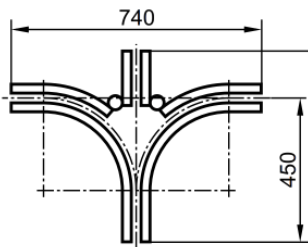
Y-switch 2 x 90°



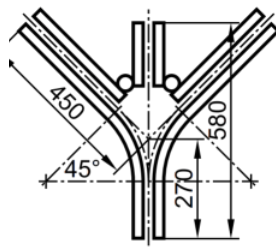
Lengthened Y-switch 2 x 90°



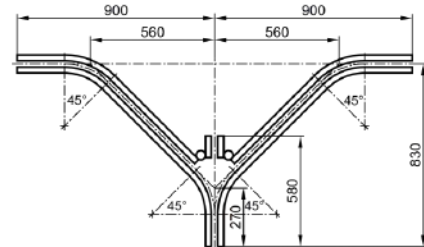
3 way switch 2 x 90°



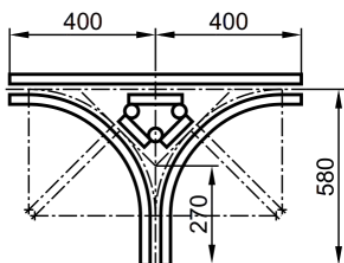
3 way switch 2 x 45°



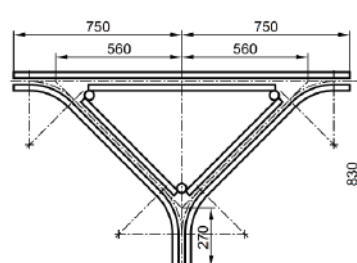
Lengthened 3 way switch 2 x 90°



Standard T-switch



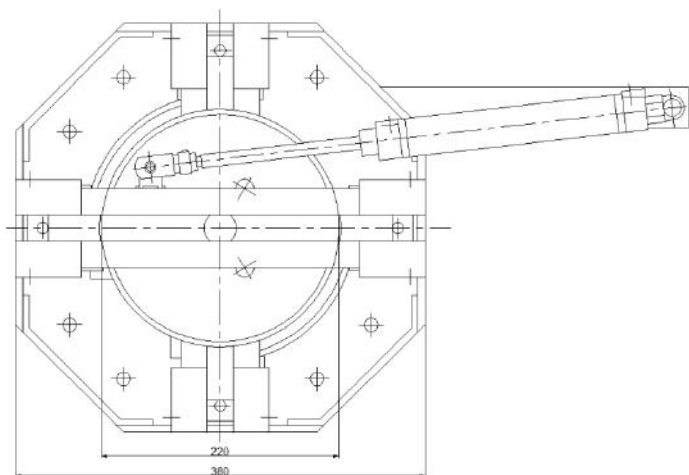
Lengthened T-switch



Turntable & Switch Combination

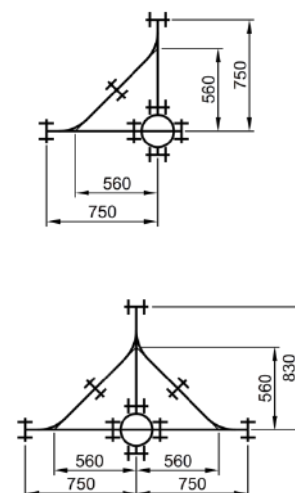
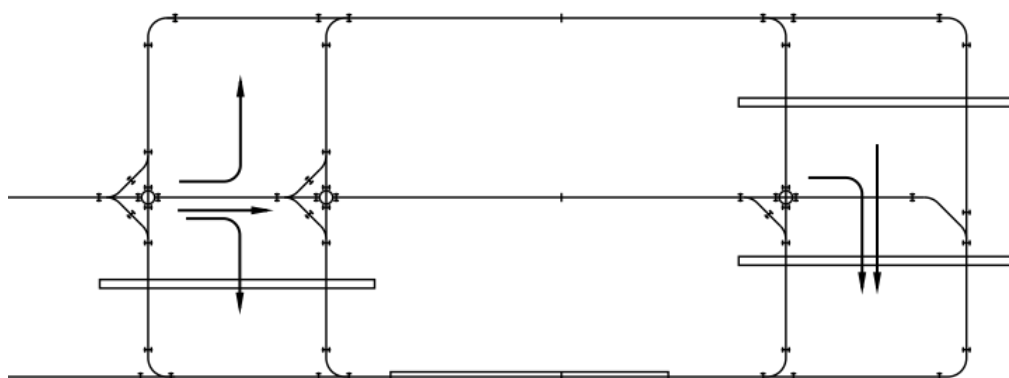
Turntable

This device is used to switch between different tracks at a junction. The operation of the turntable can be either pneumatic or electric, and can only be operated without a trolley in the turntable itself.



Switch / Turntable Combination

A turntable is commonly used in combination with switches. In order to ease the mounting of these combinations, the use of the switches as follows is strongly recommended, because of their specially adapted overall dimensions.



Brackets, End Caps & Stopper

Brackets

The brackets are subdivided into standard and joining brackets. A standard bracket is used as a suspension point for the track, and a joining bracket is used as a suspension point where two tracks are joined. A monorail installation can be mounted directly to a ceiling (subject to the ceiling being strong enough), or to a horizontal or vertical mounting face.



Universal mounting bracket



Ceiling mounted bracket



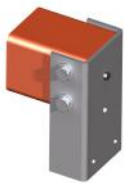
Brackets on a threaded rod



Wall fixing Bracket

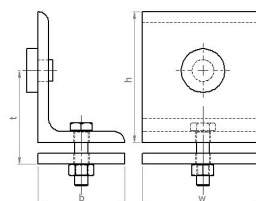
End Caps

The end cap with buffer is used in combination with a trolley or hoist or when the trolley should run to the end of the monorail. Some end caps are provided with a connecting box for flat and flexible electric cables and with fixing holes for the fastening of a cable clamp.



Stopper

The rail stop is used to limit the runway in a monorail. Usually, they are mounted at the ends of a rail system to prevent the trolleys from falling out.



Trolleys

We have developed a complete range of standard hardened wheelsets, mounted with ball-bearings and built to fit different types of applications. The wheels work independently and are mounted two by two (bogie arrangement). Depending on the application, there is the choice between 2-wheeled, 4-wheeled or 8-wheeled trolleys.



*Wheelset
100°C / 212°F*



*Wheelset
150°C / 302°F*



*Wheelset
300°C / 572°F*



*2-wheeled trolley
with bolt, longer nut
and clamping pin*



*2-wheeled trolley
with eye nut*



*2-wheeled trolley
with hook*



*4 - wheeled trolley
with bolt, longer nut
and clamping pin*



*4 - wheeled trolley
with eye nut*



*4 - wheeled trolley
with coupling nut*



*4 - wheeled trolley
with hook and safety
latch*



*4 - wheeled trolley
with axle for hoist*



*4 - wheeled trolley
with axle for hoist -
straight sliding*



*8 - wheeled trolley
with bolt*



*8 - wheeled trolley
with hook and safety
latch*



*8 - wheeled trolley
with axle, swivel hook
and safety latch*

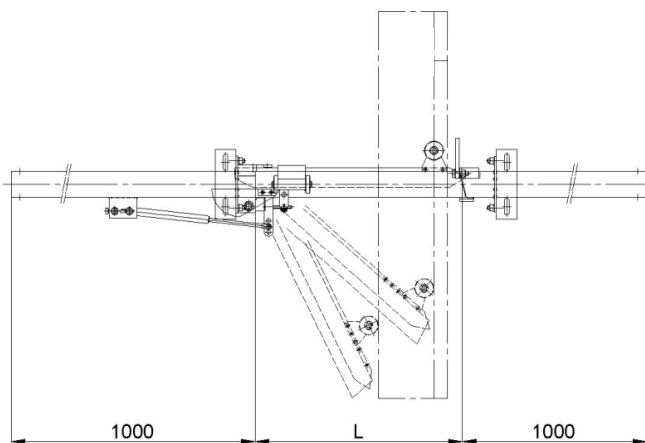
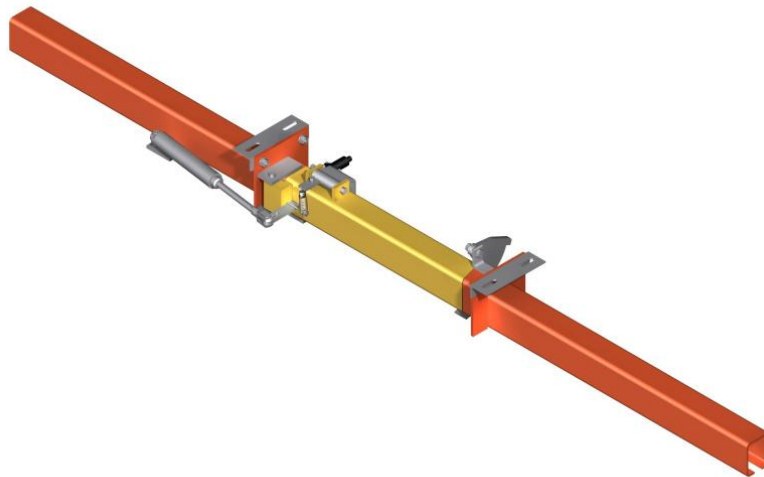


*8 - wheeled trolley
with axle for hoist*

Monorail Interrupter

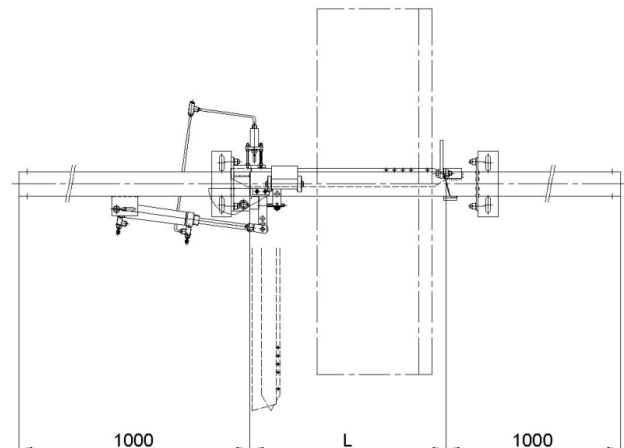
The interruption of a monorail is often necessary in the case of fire proof doors, sliding doors for ovens, locking devices for unloading areas, roller shutters, guillotine doors, etc.

The built-in security guarantees that the monorail interrupter cannot be opened in the instance where a trolley is inside the unit. A left or a right turning operation is available.



Mechanical Operation

In case of mechanical operation the sliding door opens the interrupter. The closing of the interrupter is by a spring mechanism.



Pneumatic Operation

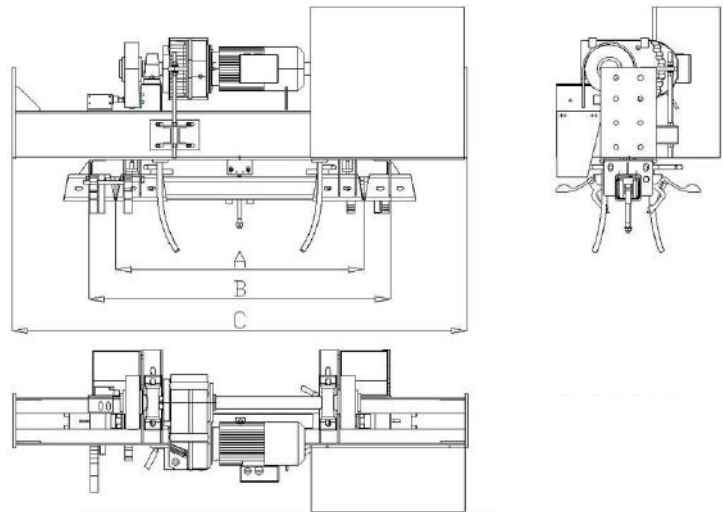
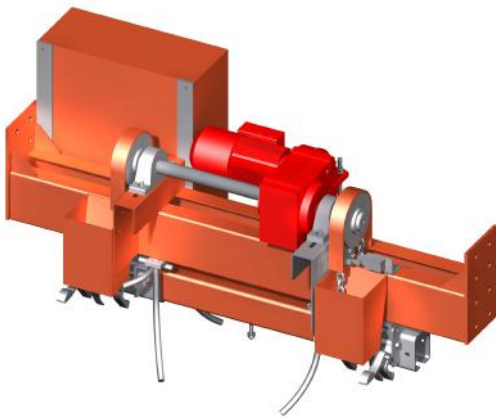
In this case the interrupter is opened by a pneumatic cylinder. The track length is made at a standard $L = 550 \text{ mm} / 21.7''$.

Drop Section & End Drop Section

Drop Sections

With a drop section goods can be lifted or lowered to a worker's working height; this allows the track to be installed at a higher level off the ground. In the loading, unloading and painting area goods can be easily handled. Drop sections can be incorporated in either new or existing installations.

The drop sections are standardized for lifting capacities of 250 kg / 551 lbs and 500 kg / 1102 lbs, and solutions for heavier loads are possible upon request. For special applications, drop sections with a vertical guide system can be installed.



End Drop Sections

An end lift-lower device consists of a track of 1m / 3.28 ft and a hinged track.

With a hoist, the hinged track can be lifted. A safety device automatically locks the track.



Semi-Automation

For automation of manual monorail systems, there are various options available. Automation of parts of the monorail system can greatly increase efficiency and overall output.

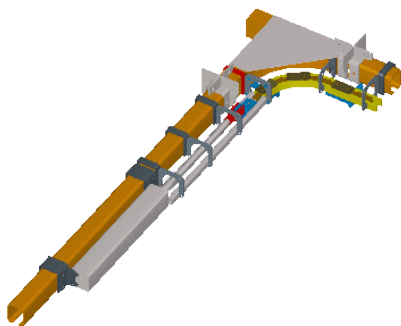
Transfers, insertion frames and pushers can be used to move the loadbars automatically at important locations along the production line. Stopping stations, activated by sensors, are used to stop / position the loadbars at any given position along the track.



Teleflex D8 Transfer

This device uses our Teleflex D8 chain with a pusher dog running next to the monorail to push the loadbar along.

This is a cost-efficient way to automate part of the system, for transportation through a spray booth for example, or the return line of empty carriers.



Pneumatic Pusher

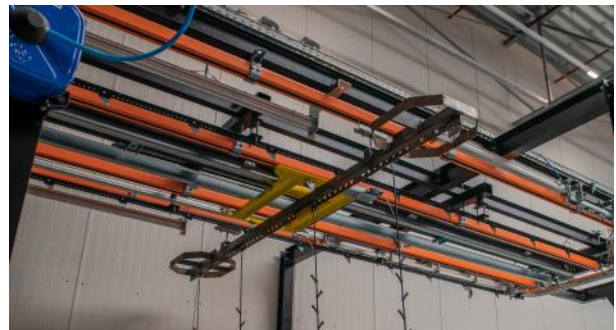
This device is usually used at the end of a buffer to push the loadbars into or out of the line of a transfer at a given time, via sensors.



Pneumatic Insert Frame

This pneumatically powered insert frame is able to push the loadbar 1 position every takt the system makes.

This means that the timing of the movement of the loadbars can be controlled.

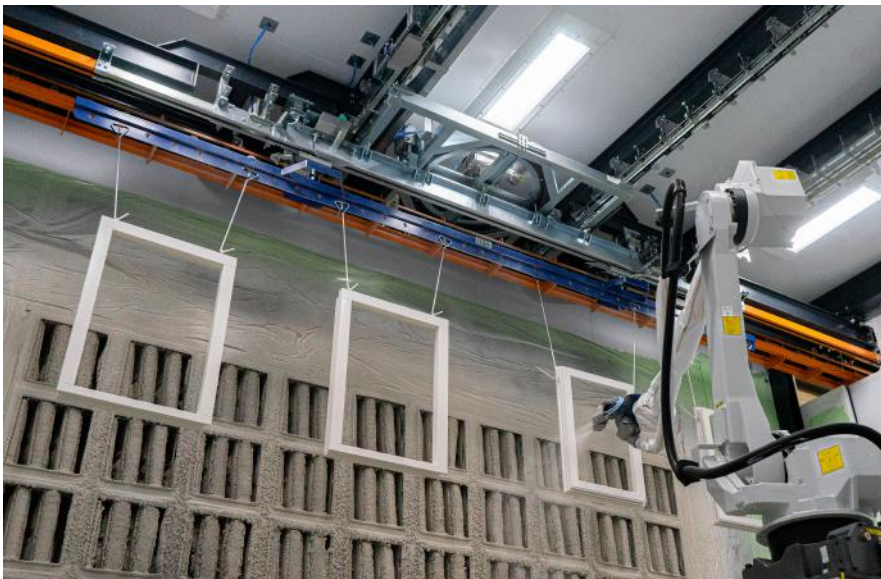


Pendel Transfer

This transfer has a motor that can bring the loadbar all the way from the beginning of the buffer to the end in one go.

Rotation Unit with Spraying Robot

A rotation unit is widely used in circumstances that use a spraying robot. Once one side of the product has been painted, the rotation unit automatically turns the loadbar by 180° so that the other side of the product can be spray painted. The number of rotations, spray time and color can be pre-determined by the system, making the painting process smooth and efficient.



The rotation unit disengages from the main transport track and travels along the rail before rotating the loadbar 180°. Once it has finished turning, it returns back to the main track where the robot continues to spray the other side of the product.

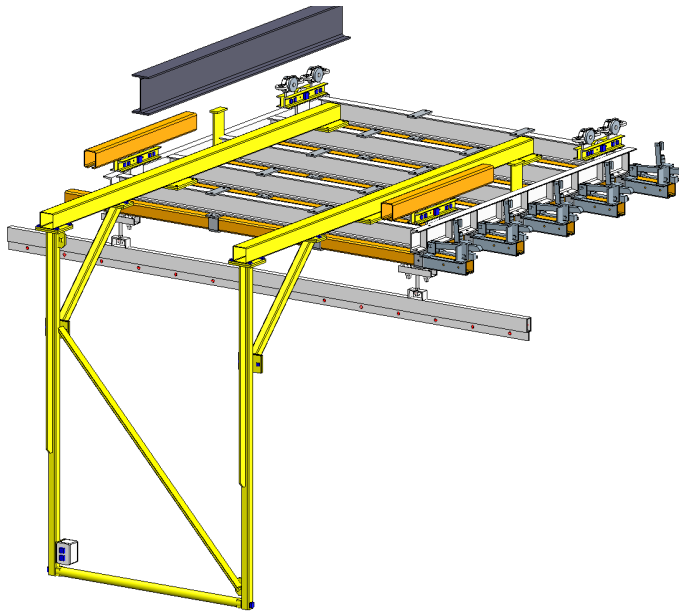


The products can be tagged using barcode / RFID tags, allowing them to be tracked as it makes their way through the painting and drying areas. This is visualized via the touchscreen panels at the switchboard, making it easy to make adjustments and track the progress of the product along the system.

Shunting Bridge & Bridge Crane

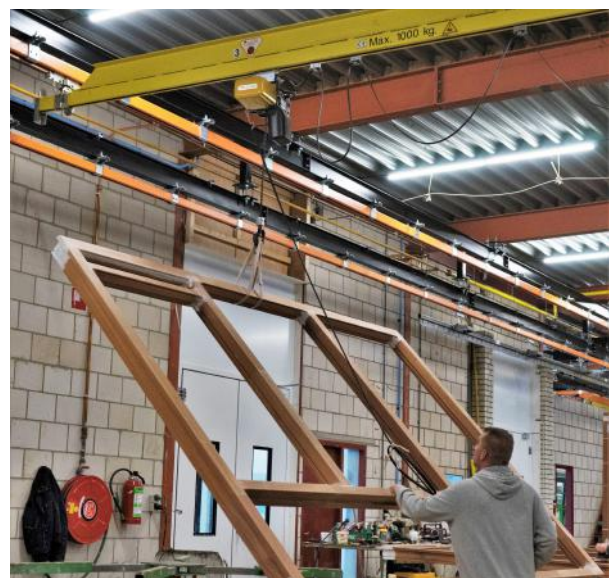
Shunting Bridge

In a monorail circuit, a shunting bridge crane can be mounted in order to allow the trolleys to run in parallel mounted tracks: e.g. in baking ovens, sorting areas and buffers. The bridge crane can be coupled mechanically or pneumatically. This allows for a compact solution when floor space is limited.



Bridge Crane

Bridge cranes can be both manual and semi-automated, and move material across industrial environments and in the workshop. Many industries use bridge cranes for their manufacturing and maintenance operations. They are widely used for lifting, moving and precise positioning of products across the shop floor.





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