

# Overhead and Floor Power & Free Conveyors



RAILTECHNIEK  
VAN HERWIJNEN BV

SPECIALISTS IN OVERHEAD CONVEYORS

# Index

## Introduction

What is a Power & Free System? .....	3
Advantages of a Power & Free Conveyor .....	4

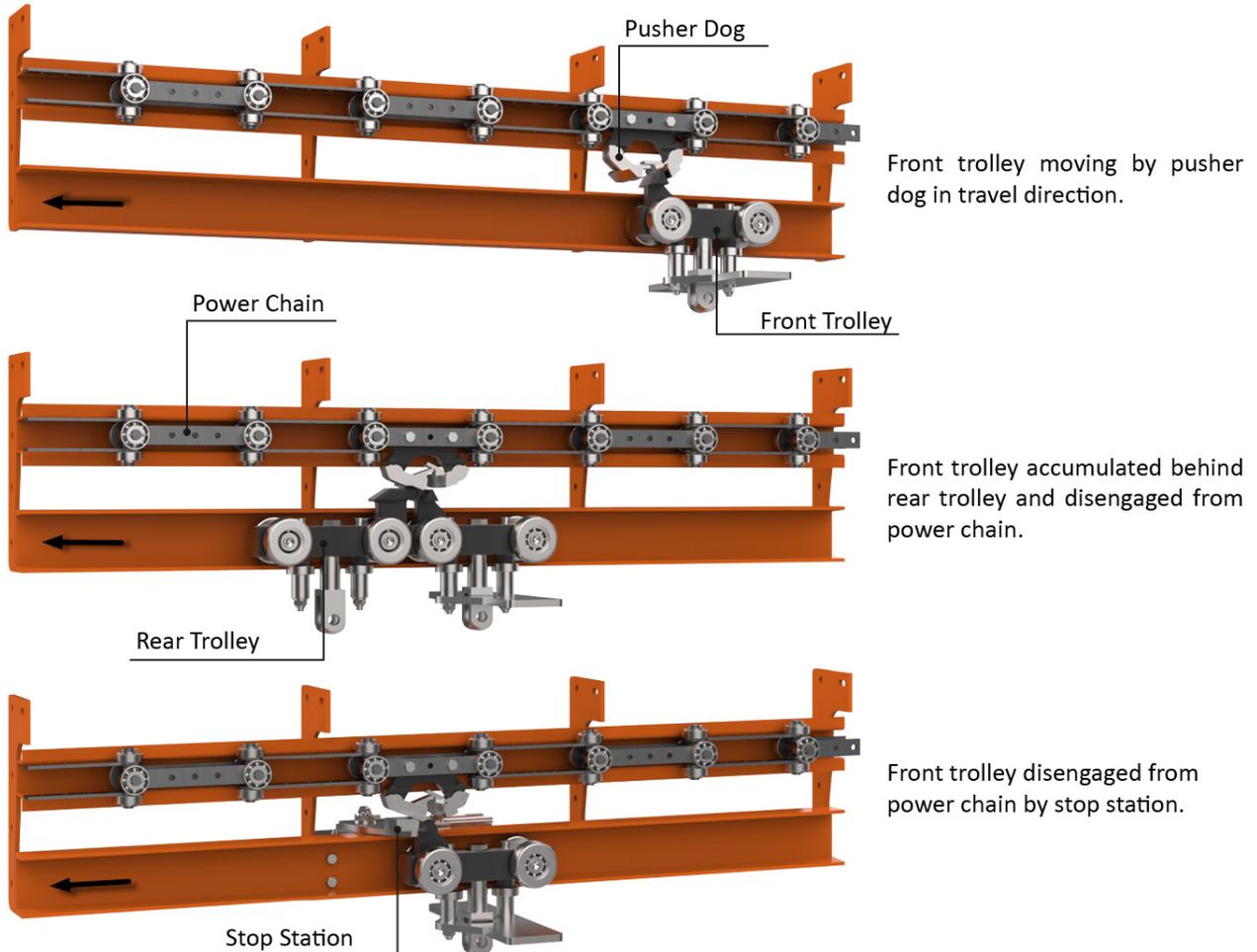
## Products

K8-2 Power & Free .....	5
T1 Power & Free .....	6
T4 Power & Free .....	7
T5 Power & Free .....	8
F2 Power & Free .....	9

## Components

K8 Chain .....	10
Teleflex D8 Chain .....	11
Pusher Dogs .....	12
Trolleys .....	13
Drive Units .....	14
Other components .....	15

# What is a Power & Free System?



Power & Free conveyors are based on a twin-track system. The rail is divided into an upper profile called the “power track” and a lower profile called the “free track”. The Power & Free rails are bolted together with connecting flanges, allowing for a modular design and easy customizability with other components to form a system.

On an equal pitch, pusher dogs fitted in the power chain are used to pull the carriers around the system. When engaged, the movable cams of the pusher dogs latch onto the trolley to form an interlinked connection.

Stop stations are used to disengage the link between the power chain and trolleys. When a stop station is closed, the carrier will stop while the power chain keeps moving. Because of the pusher dog and trolley design multiple carriers can accumulate behind a stop station, also known as a buffer.

# Why Power & Free?

## Advantages of a Power & Free Conveyor

- Compact, bolted track design for easy assembly without welding
- Modular system with highest quality moveable components inside the track, ensuring quality and reliability
- Long lasting and robust machinery with low maintenance
- Fully customized layouts are possible according to the floor space requirements
- Advanced automatic PLC-based control system with touchscreen user interface and remote access



### Automotive Industry

We are specialized in providing solutions for the automotive industry, namely for the production of trucks, wheels and other specialized machinery, where products need to be routed to multiple spray booths or where accumulation in a buffer is advantageous.



### Surface Treatment

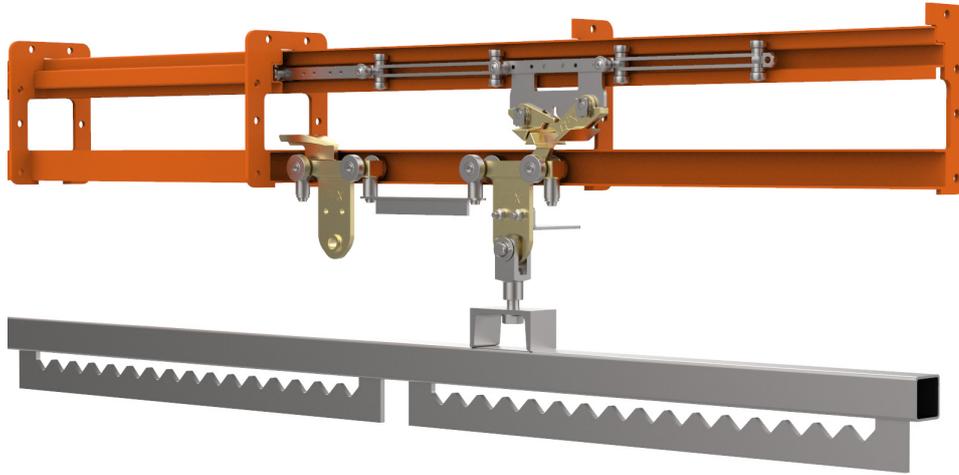
Our conveyors are used widely across the surface treatment industry, carrying the product through flash-off zones, spray cabins, powder coating units, washing areas, pretreatment areas, drying and curing ovens.



### 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.

# K8-2 Power & Free



The K8-2 track system is our light-duty Power & Free system that consists of straight and curved tracks.

The K8-2 is mostly used in smaller, more compact installations, where it is important to still utilize the benefits of a Power & Free type system, such as buffering.



**Chain carrier pitch:**

400 mm / 15.7"

**Max. Temperature:**

250°C / 482°F

**Max. Load per Trolley:**

80 kg / 176 lbs

**Max. Load per Loadbar:**

140 kg / 309 lbs

**Standard Length, straight profile:**

3.0 m / 9.8 ft

**Horizontal bends:**

780 mm / 30.7" radius at 15° / 30° / 45° / 60° / 90°

**Vertical bends:**

780 mm / 30.7" radius at 15° / 30° / 45°

**Drive unit:**

Caterpillar drive

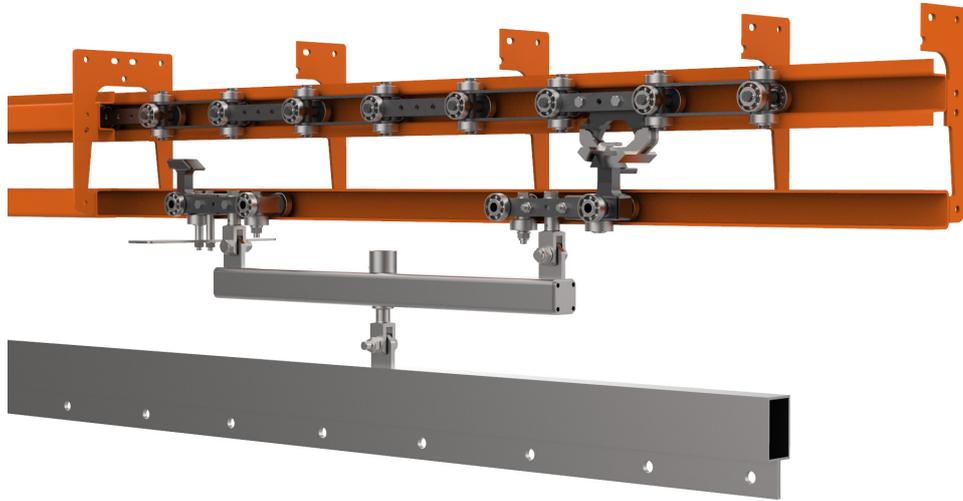
**Tension unit:**

Manually adjusted, tension range 200 mm / 7.9"

**Switches:**

Pneumatic / Electric

# T1 Power & Free



The T1 track system is our most popular system consisting of our world renowned Teleflex D8 chain in the power rail. We offer a multitude of different trolley configuration possibilities based on the clients' needs.

The front and rear transport trolleys are usually connected to each other with a "load bar". A product holder especially developed for specific products can be attached to each load bar, thus carrying the product across the shop floor.



**Chain carrier pitch:**

406.4 mm / 16"

**Max. Temperature:**

230°C / 446°F

**Max. Load per Trolley:**

150 kg / 331 lbs

**Max. Load per Loadbar:**

500 kg / 1102 lbs

**Standard Length, straight profile:**

3.0 m / 9.8 ft

**Horizontal bends:**

750 mm / 29.5" radius at 15° / 30° / 45° / 60° / 90°

**Vertical bends:**

1118 mm / 44.0" radius at 15° / 30° / 45°

**Drive unit:**

Caterpillar drive / Worm drive

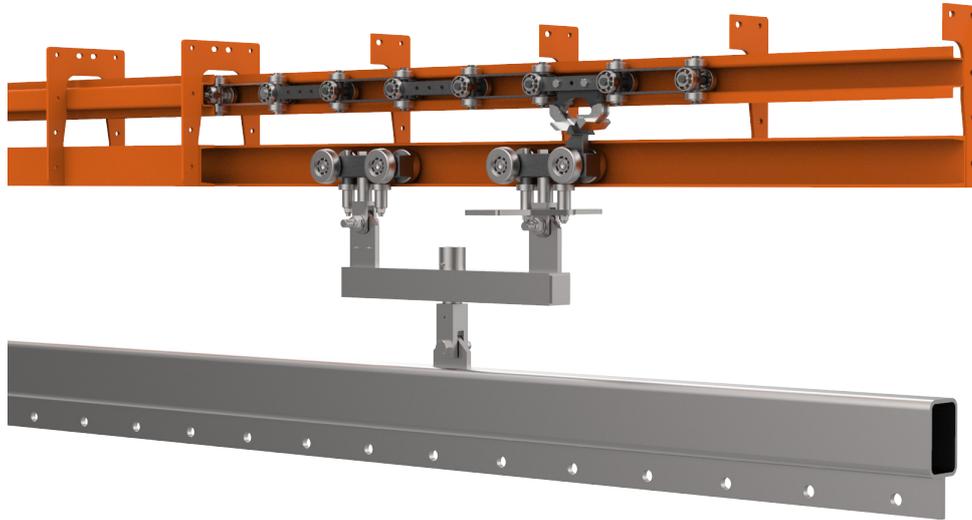
**Tension unit:**

Draw bolt

**Switches:**

Pneumatic / Electric

# T4 Power & Free



The T4 track system is for more heavy duty applications, and is mainly used in the cast iron, steel and metal product industries.

The T4 shares the same specifications for switches and bends as the T1, but is able to carry significantly heavier loads based on trolley configurations.



**Chain carrier pitch:**

406.4 mm / 16"

**Max. Temperature:**

230°C / 446°F

**Max. Load per Trolley:**

1000 kg / 2205 lbs

**Max. Load per Loadbar:**

3000 kg / 6614 lbs

**Standard Length, straight profile:**

3.0 m / 9.8 ft

**Horizontal bends:**

750 mm / 29.5" radius at 15° / 30° / 45° / 60° / 90°

**Vertical bends:**

1118 mm / 44.0" radius at 15° / 30° / 45°

**Drive unit:**

Caterpillar drive / Worm drive

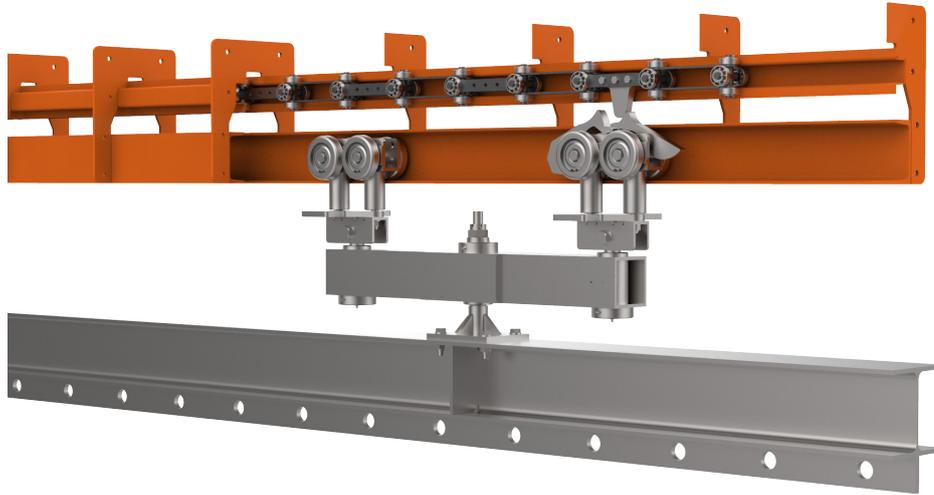
**Tension unit:**

Draw bolt

**Switches:**

Pneumatic / Electric

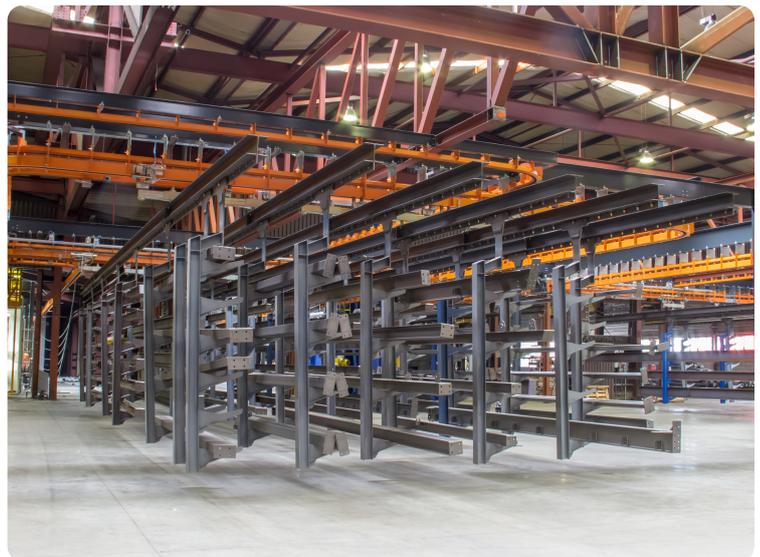
# T5 Power & Free



The T5 track system is our most heavy duty conveyor, used widely in the surface finishing and powdercoating industry.

The T5 has specialized trolleys, pusher dogs and switch and bend configurations especially designed to facilitate heavy loads across the shop floor.

These systems are designed to carry products through pretreatment cabins, powdercoating booths and drying ovens.



**Chain carrier pitch:**

406.4 mm / 16"

**Max. Temperature:**

230°C / 446°F

**Max. Load per Trolley:**

1500 kg / 3307 lbs

**Max. Load per Loadbar:**

5000 kg / 11023 lbs

**Standard Length, straight profile:**

3.0 m / 9.8 ft & 6.0 m / 19.7 ft

**Horizontal bends:**

900 mm / 35.4" radius at 15° / 30° / 45° / 60° / 90°

**Drive unit:**

Caterpillar drive / Worm drive

**Tension unit:**

Draw Bolt

**Switches:**

Pneumatic / Electric

# F2 Power & Free



The F2 wide track is our latest product offering. This Power & Free floor conveyor was especially designed for the surface treatment industry.

The wider track configuration compared to a regular track allows transport of heavier loads in an extremely stable manner.

This increases efficiency and allows for precise positioning at components like oscillating pushers and rotation units to ensure an equal surface treatment finish.



**Chain carrier pitch:**

406.4 mm / 16"

**Max. Temperature:**

230°C / 446°F

**Max. Load per Trolley:**

200 kg / 441 lbs

**Max. Load per Loadbar:**

400 kg / 882 lbs

**Standard Length, straight profile:**

3.0 m / 9.8 ft

**Horizontal bends:**

750 mm / 29.5" radius at 15° / 30° / 45° / 60° / 90°

**Vertical bends:**

1118 mm / 44.0" radius at 15° / 30° / 45°

**Drive unit:**

Caterpillar drive / Worm drive

**Tension unit:**

Draw bolt

**Switches:**

Pneumatic / Electric

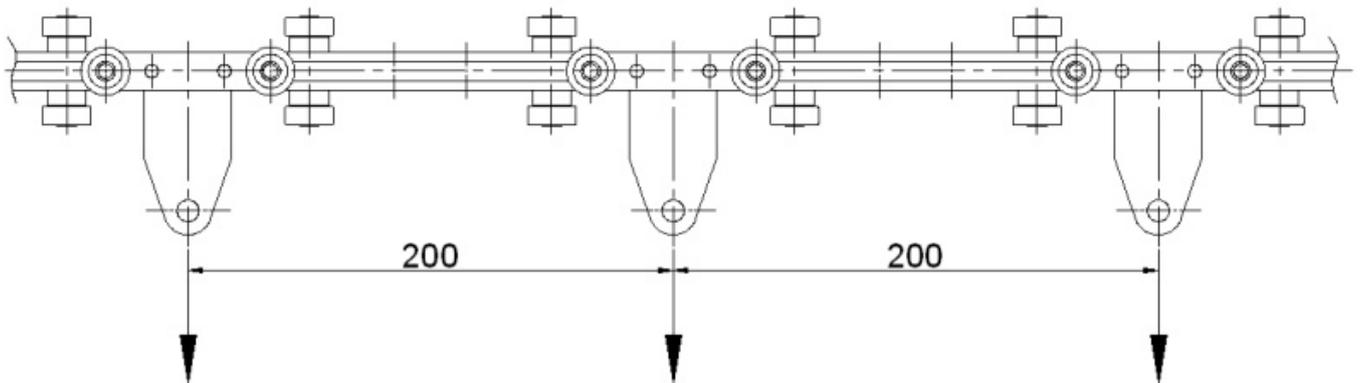
# K8 Chain

## K8 Chain

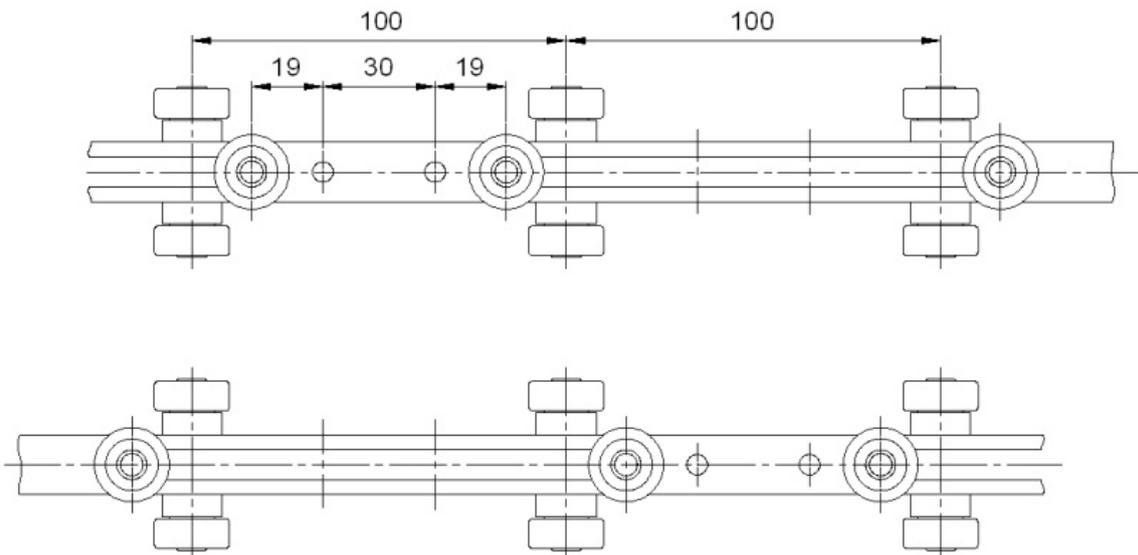
The K8 cardan chain is a compact, versatile chain that is used in the K8-2 Power & Free conveyor.

The high quality, reliable and durable chain has a service life of around 15 years when well maintained and lubricated.

The chain is offered at 100, 150 and 200 mm (3.9, 5.9, 7.9") pitch lengths.



*Double-plate link chain*  $t = 100\text{ mm}$



# Teleflex D8 Chain

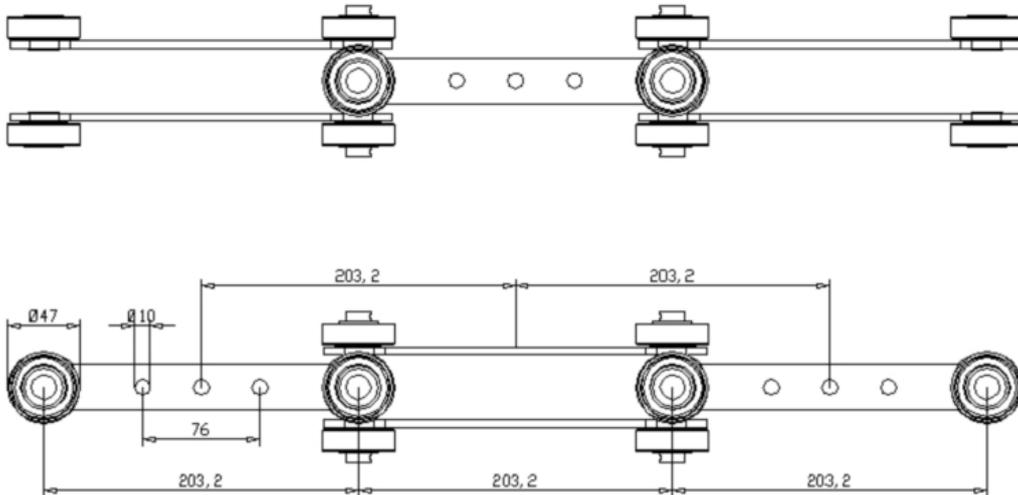


## Teleflex D8 Chain

The Teleflex D8 cardan chain is the heart and soul of our T1, T4, T5 and F2 Power & Free conveyors.

The high quality, reliable and durable chain has a service life of many years when well maintained and lubricated.

The chain is offered at a standard pitch of 203.2 mm / 8", but can be made to any pitch dimension required when used with a worm drive unit.



## Chain Bearings

We offer the D8 chain with both open type and closed type bearings, depending on the system requirements and the environment they will be used in.



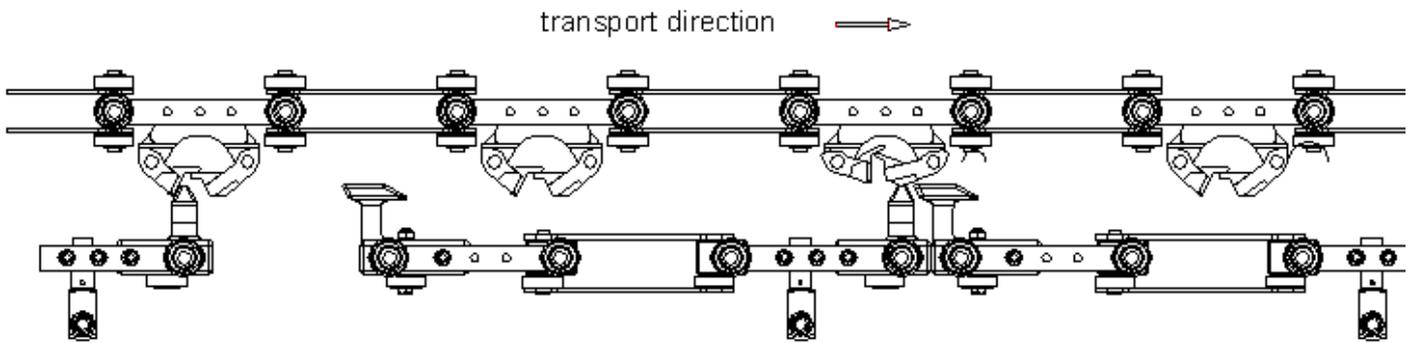
For example, open bearings are used in high-temperature applications and closed bearings in applications like sandblasting, where the bearings are protected against fine particles that could potentially clog the bearings.

# Pusher Dogs



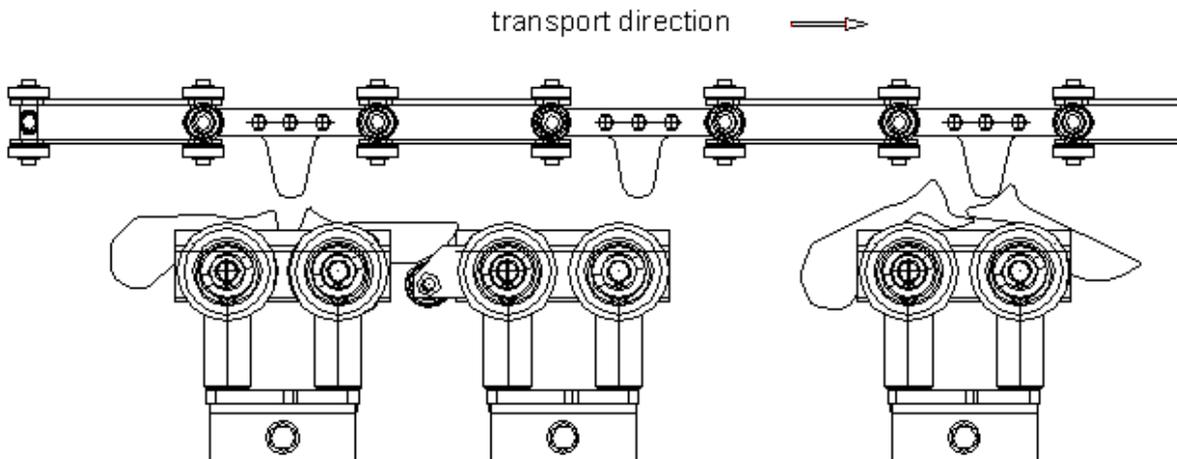
## T1 / T4 Pusher Dog

A pusher dog is the device that “pushes” the trolley carrying the product along the rail. In the T1 and T4 systems, the pusher dog has moveable cams that can easily engage and disengage from the trolleys when needed - at a stop station, for example.



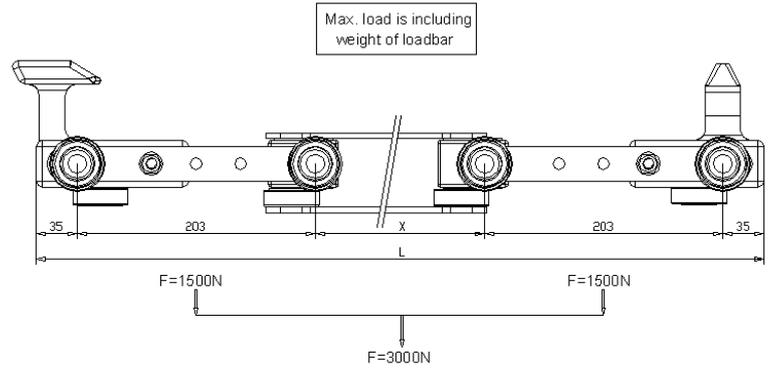
## T5 Pusher Dog

In the T5, since the loads are much heavier, the moveable cams are installed on the trolleys and these engage and disengage from the solid pusher dog installed in the chain.

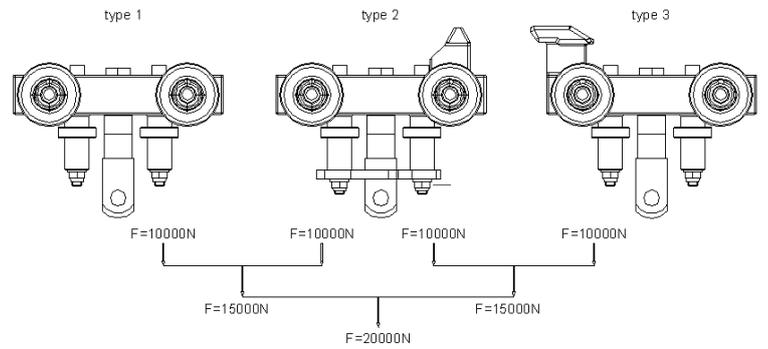


# Trolleys

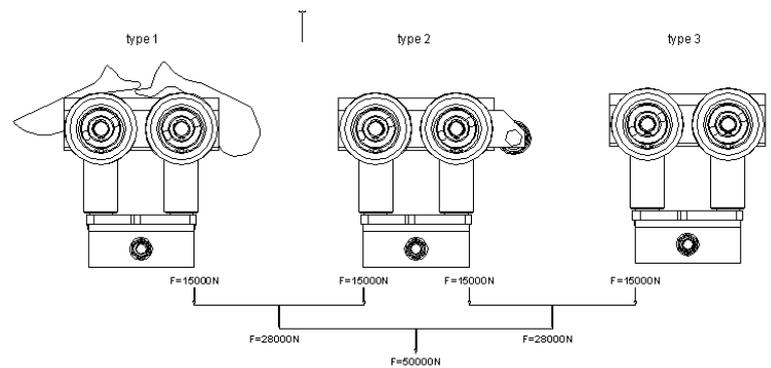
## T1



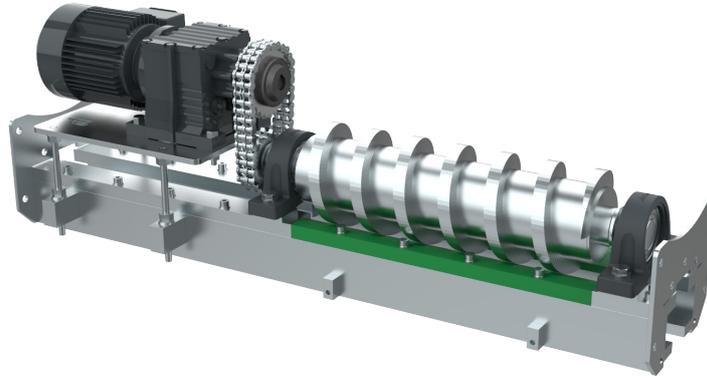
## T4



## T5



# Drive Units



## Worm / Helical Drive Unit

This worm drive unit is primarily used to power the track systems that use the D8 chain and ensures the smooth, quiet and precise movement of the chain through the track. It has very few moving components, meaning less wear and tear and easier maintenance.

**Length:**

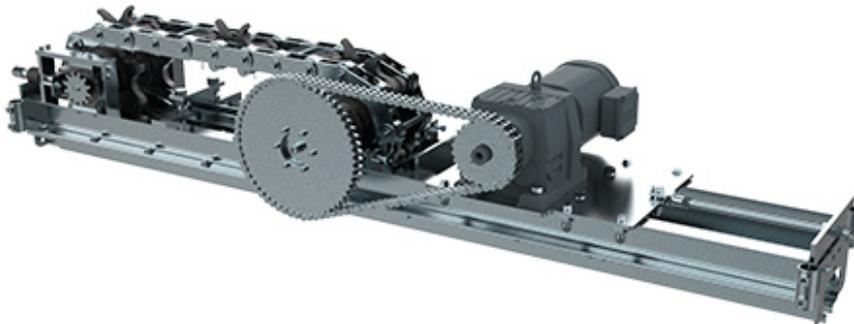
1000 mm / 39.4"

**Pulling Force:**

4000N

**Weight:**

113 kg / 250 lbs



## Caterpillar Drive Unit

This drive unit is used for more heavy duty applications, where larger forces are needed to move the products. The caterpillar drive applies an equal and precise movement on the chain, allowing for longevity of the chain itself.

**Length:**

2300 mm / 90.6"

**Pulling Force:**

9000N

**Weight:**

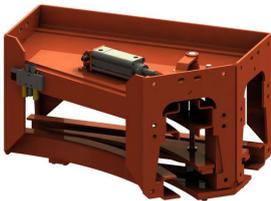
400 kg / 882 lbs

# Other Components



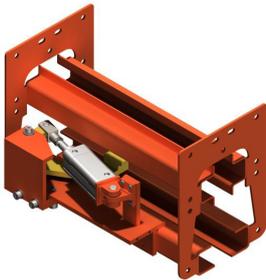
## Tension Unit

The standard spring-guided tension unit is used to manually tension the chain in order to ensure the proper functioning of the chain in the system.



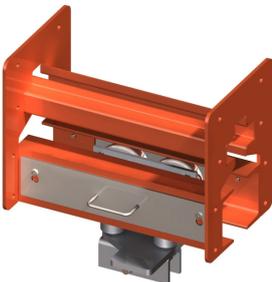
## Switches

This component is used to change the direction of the material flow to other parts of the track or to a storage buffer for example. They are either pneumatically or electrically controlled.



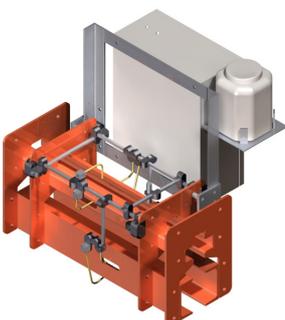
## Stop Station

This component is widely used in conveyor technology, and is used to stop the product carrier at a certain point in the system, at a loading position for example.



## Inspection Unit

This unit is used for maintenance of the system and is used to inspect the bearings of the trolleys and chain, so that lubricant can be applied manually if required.



## Lubrication Unit

This unit is used to automatically lubricate the chain at set intervals. Mainly used in installations that have a type C3 (open bearing) chain, where temperatures are above 100°C / 212°F



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