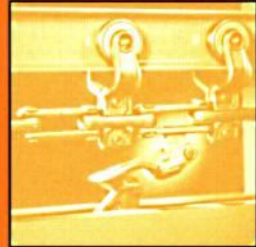




# Rapid Industries, Inc.

DESIGNERS • MANUFACTURERS • INSTALLERS

*Rapid Flow  
3X3X3 Power & Free*



# Rapid Flow 3X3X3 Power & Free

Patent No. US6308637B1

**The Stronger Solution • Longer conveyors with a single drive system.**

The **Rapid Flow 3X3X3 Power & Free** conveyor is Rapid Industries exciting new Power & Free System, combining the rugged-ness and strength of X-348 power chain with the versatility and chain-to-chain transfer of the enclosed track power chain.

This unique combination offers you the best of both systems, operating properly with much higher chain pulls than enclosed track systems. This means fewer drives in long systems, giving you far lower installation and controls costs.

Rapid Industries patented process utilizes the pivoting power chain dog of the enclosed track system attached to X-348 chain. This allows the **Rapid Flow 3X3X3 Power & Free** conveyor to have automatic chain-to-chain transfers and eliminates the "dead zone" common to I-beam type Power & Free conveyors without the use of any auxiliary pusher mechanisms.

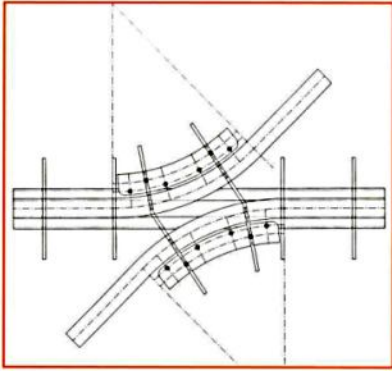
With capabilities of programmable controller and robot interfacing, **Rapid Flow 3X3X3 Power & Free** conveyor systems easily meet today's high tech requirements. **Rapid Flow 3X3X3 Power & Free** features accumulating trolleys which control the movement of carriers and are capable (automatically or manually) of starting, stopping, switching, accumulating, regulating, transferring, lowering or lifting the carrier at any required point along the system.

Each **Rapid Flow 3X3X3 Power & Free** system is engineered for a specific application, although most components are standard.

Rapid Industries will design, manufacture and install a complete system with matching standard or custom parts.



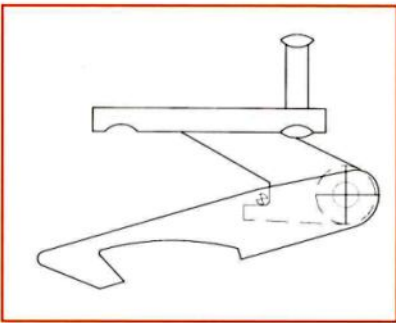
# Rapid Flow Components



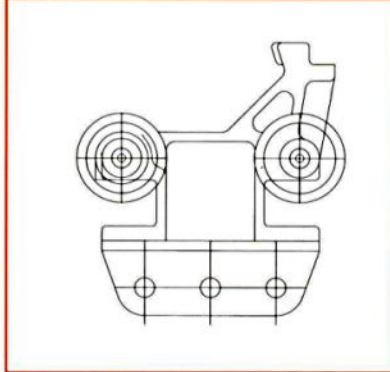
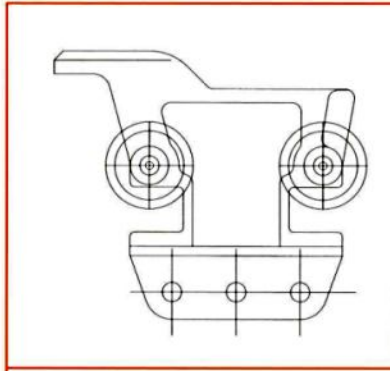
All chain-to-chain transfers are made utilizing direct chain-to-chain contacts, eliminating all pushers, air cylinders, parasitic chains and / or tight bite track sections. The chain dog will engage the trolley from the top of the assembly.

The front trolley transfer has the ability to accumulate through transfer zones.

Eliminates electronically interlocked chains so production can continue on one line when the second line is down.

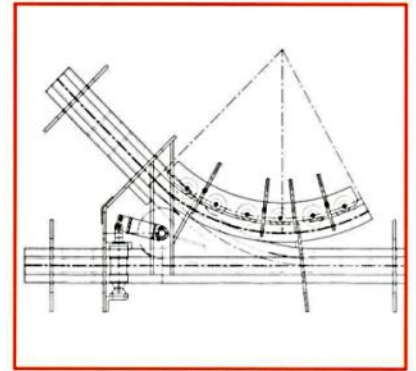


Drive power is transmitted to the free trolley by drop-forged pusher dogs, linked to the power chain. The pivoted connector on the dog remains engaged to a trolley until it strikes an air-operated stop or the beaver tail on a stopped trailing trolley. The connector then pivots up, disengaging the dog from the leading trolley, permitting the trolleys to stop at an accumulation point.

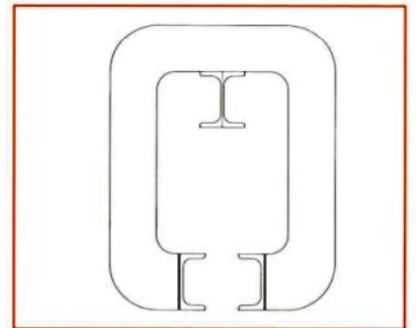


In the **Rapid Flow 3X3X3 Power & Free** system, carriers are suspended from trolleys running in the free track of the conveyor. The trolleys run on ball bearing wheels with hardened races for improved life and trouble-free operation.

Normally two trolleys — a leading trolley and a trailing trolley connected by a loadbar — will support each carrier, though more trolleys can be used. Pusher dogs connected to the power chain engage with the leading trolley to move the load. During accumulation, beaver tails on the trailing trolley lift the pivoted connectors on the pusher dogs, disengaging them from the trolleys and allowing the remainder of the conveyor system to continue operating without interference.



**Rapid Flow 3X3X3 Power & Free** switches are available in two configurations: entrance and exit. Exit switches may be controlled either manually or automatically, and are usually air actuated. Entrance switches, which are used to return a carrier to the main conveyor from a work station or other off-line accumulation point, do not require power assistance.



The power track consists of 3" I-beam with heavy duty 3" trolleys and drop-forged, rivetless, X-348 high strength transport chains.

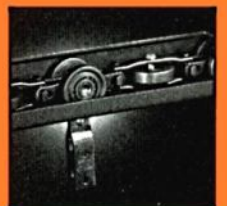




# *Rapid Industries, Inc.*

DESIGNERS • MANUFACTURERS • INSTALLERS

*Rapid Flow - Plus™  
4x4 Power & Free*



# Rapid Flow - Plus™ 4x4 Power & Free

Rapid Industries, Inc. introduces the new Heavy Duty 4x4 Power & Free Extruded Free Track Conveyor System, the new standard for all Power & Free Conveyors.

## The System

Since completion in 1994, the system has been turning heads in the Automotive Industry by operating 5-6 days a week, 24 hours a day with no known jams or production losses due to the new Free Trolley design. This is a truly remarkable record for a Power & Free Conveyor, unheard of in the Conveyor Industry!

## The Design

This new, state-of-the-art Power & Free Conveyor was designed and manufactured utilizing specially designed extruded free rail channels coupled with standard structural shapes suited for the heavy duty system.

## Track Sections

The track sections are designed utilizing a 4" I-Beam over two facing special extruded free rail channels (high strength 2400 lb. loading capacity), joined together with 1/2" thick steel yokes located on 30" centers.

The track sections feature a special free track with an additional rib extruded into the lower toe sections. This allows for close tracking of the free trolley assemblies and reinforcement of the track sections. It also creates a very heavy duty track section, subject to long life and minimum maintenance and repairs.

The steel track for this conveyor system consists of Rapalloy 1035 high carbon with a higher hardness rating than normal. Our hardness rating averages from 180 to 240 Brinell on the power track and on the free channels.

Capacity of the track sections utilizing extruded steel is equal to 2400 pounds loading per free trolley.



## System Design Advantages

Eliminates all stops and pushers at transfers because wide dog pulls trolley through distance between transferring chains.

All chain to chain transfers are made utilizing direct chain to chain contacts eliminating all pushers, air cylinders, parasitic chains, tight bite track sections. The chain dog will engage the trolley from the top of the assembly.

The front trolley transfer has the ability to accumulate through transfer zones, eliminating all stops and pushers at transfers because the wide dog pulls the trolley through the distance between transferring chains. It can also reduce

the number of stops in select areas at the designers judgement, depending on how much carrier/load oscillation is a factor in that particular area.

Eliminates electrically interlocked chains so production can continue on one line when the second line is down.

## Trolley Benefits

Heat treated wear surfaces and components.

Force rollers, Load and Guide Wheel easily replaced.

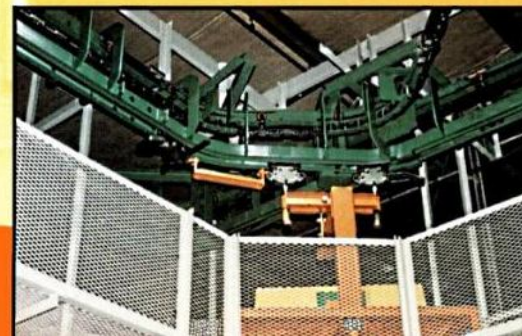
Force rollers to guide retractable dog.

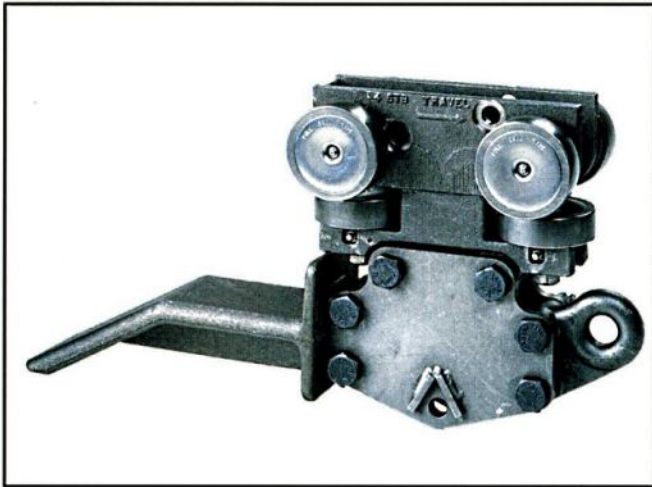
Wide dog front trolley transfer.

Greaseable Load and Guide Wheels.

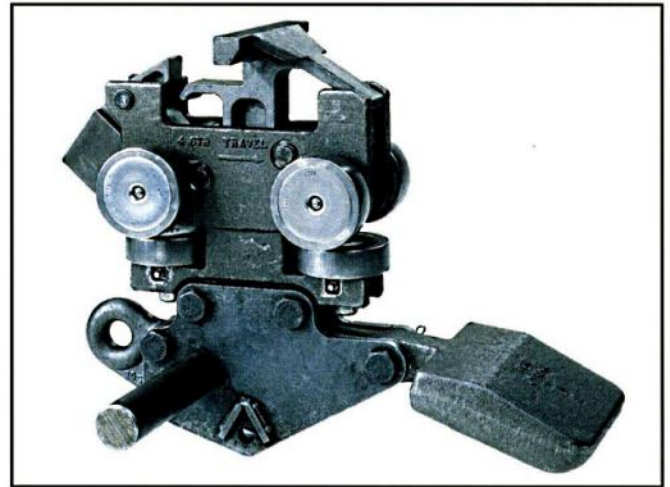
Trolley easily disassembled.

Made up of quality components that are dimensionally consistent and interchangeable.

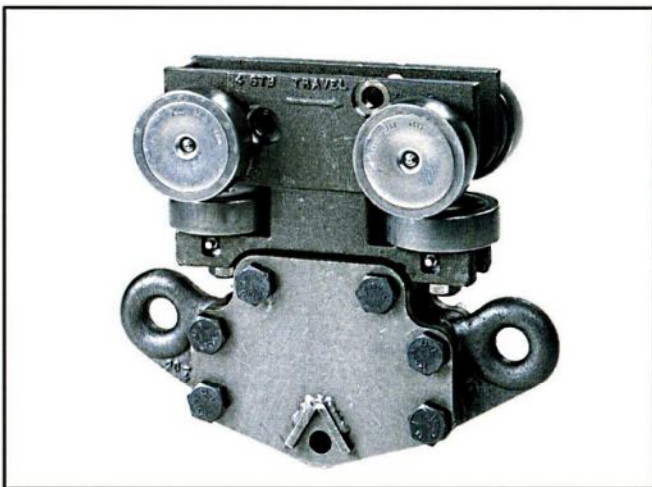




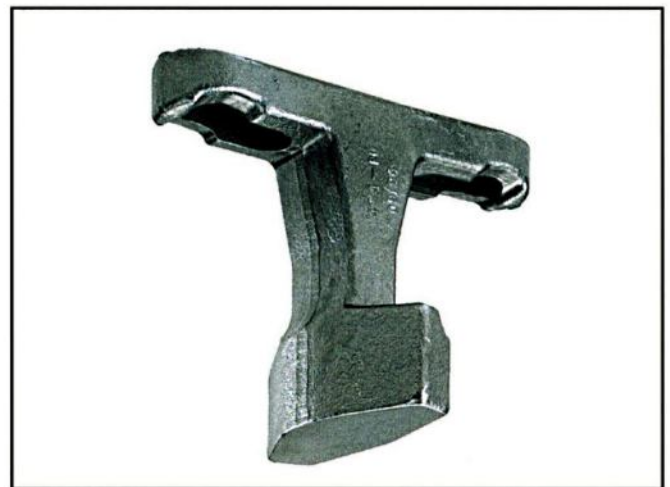
TRAILING



LEADING



INTERMEDIATE



PUSHER DOG

### ***Free Trolley Assembly***

The Free Trolley assembly utilizes wide, butterfly type pushers for chain to chain transfer. All guide and carrying wheels are sized to permit reduced spare parts stock and furnished sealed or open.

With all load wheels and side guide wheels bolted to the trolley casting, maintenance personnel are able to field repair the assemblies, eliminating full trolley replacement costs and extended production downtime.

The free trolleys are rated for loaded capacity equal to a 5" thereby allowing the system to handle greater weights than any other 4x4x4 conveying system in the U.S.

All movable parts of the assembly are removable and may be field repaired easily.

All contact parts are hardened and machined utilizing state-of-the-art computer-controlled CNC machines.

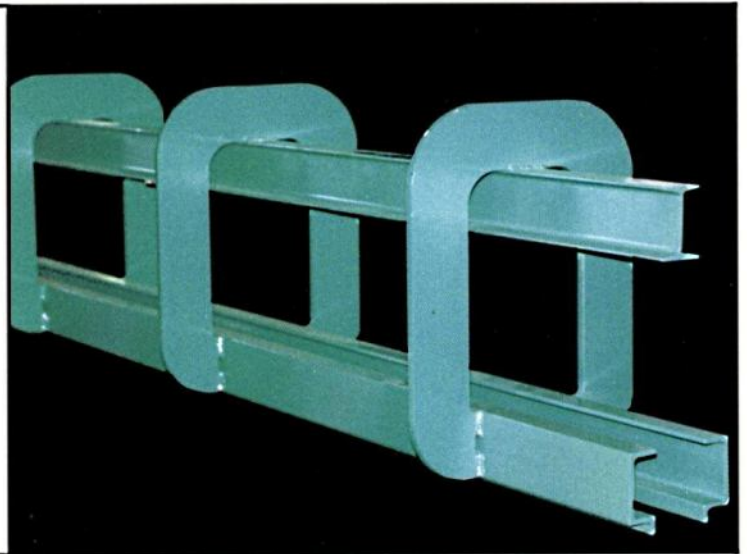
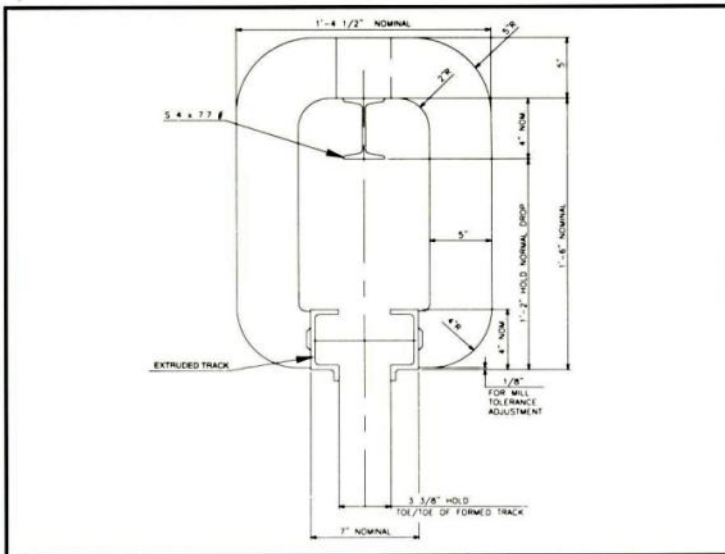
### ***Chain Pusher Dog***

Built with butterfly design utilizing special extended hardened chain assembly pin. Forged and hardened to exceed the limits of the chain itself.

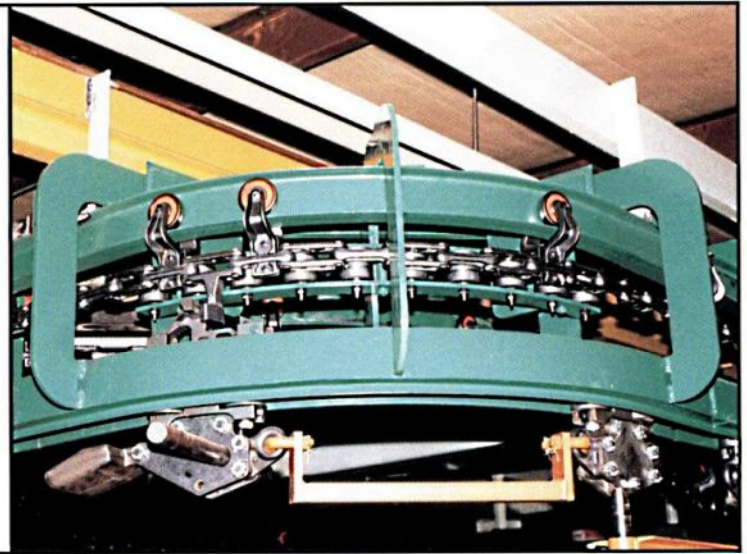
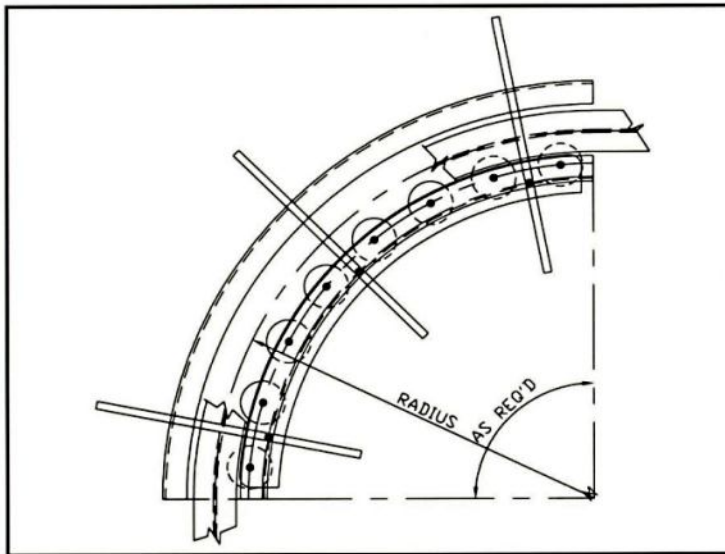
### ***Chains***

All transport chains are drop forged, rivetless, X-458 high strength and manufactured under strict Codes and Standards.

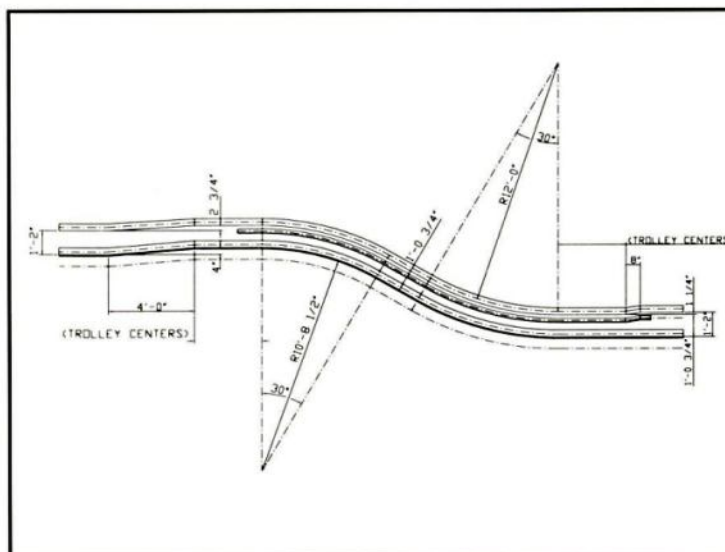




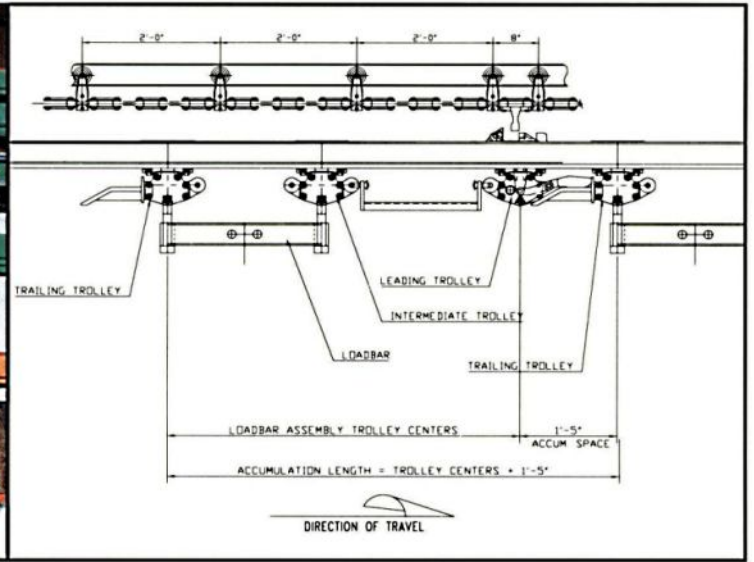
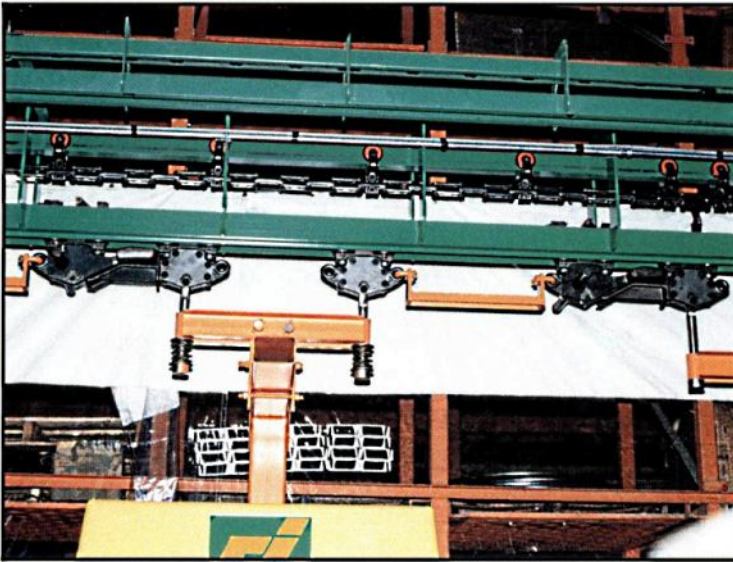
TRACK



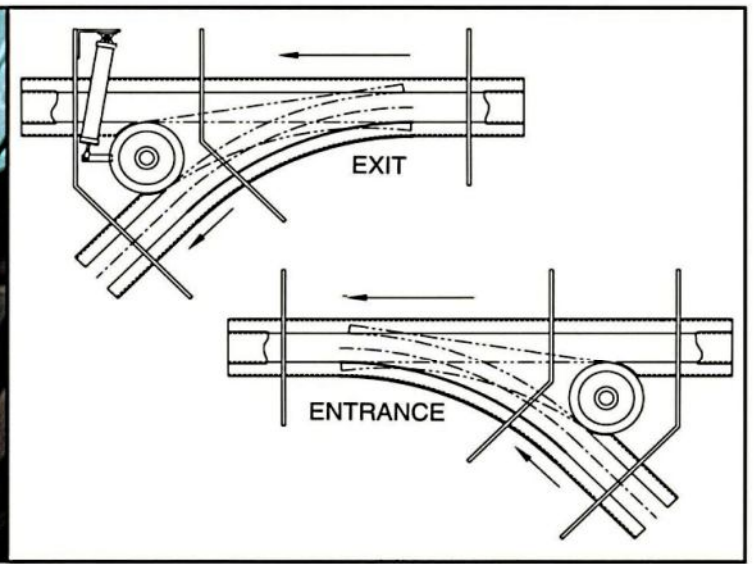
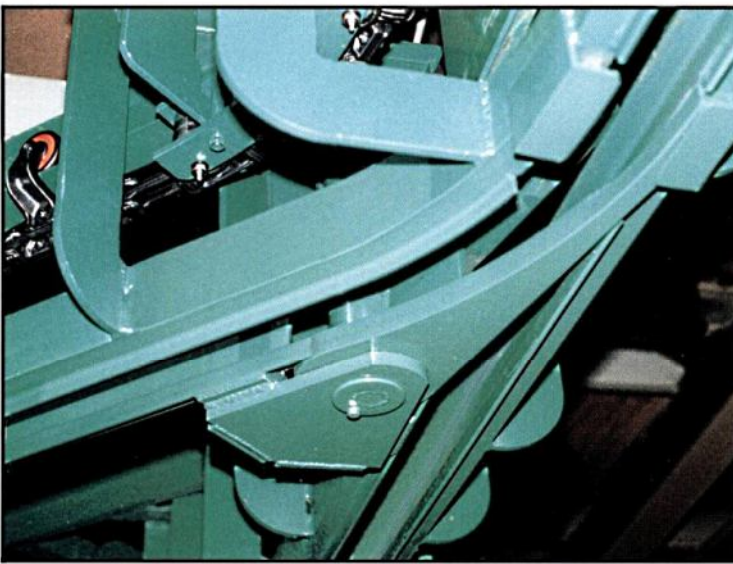
HORIZONTAL TURN



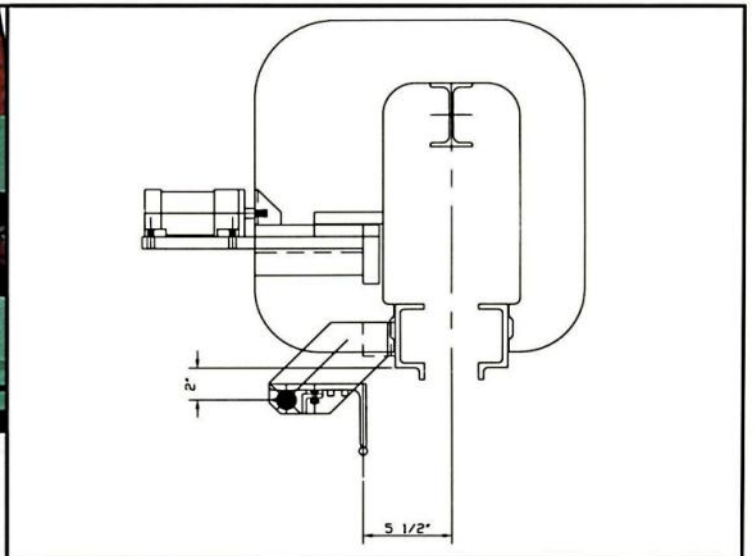
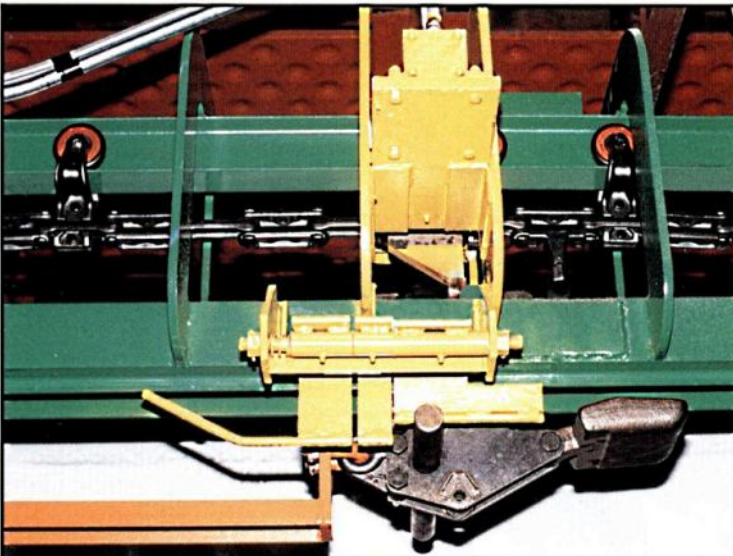
VERTICAL CURVE



ACCUMULATION



SWITCH



STOP



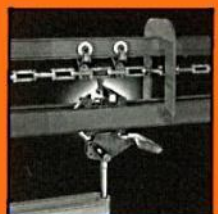
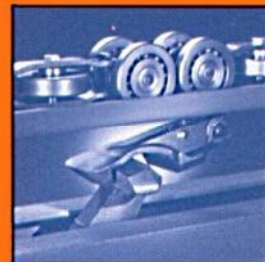




# **Rapid Industries, Inc.**

DESIGNERS • MANUFACTURERS • INSTALLERS

## **Q-Flex™ Power & Free Systems and Components**



# RAPID FLOW Q-FLEX

## POWER & FREE OVERHEAD CONVEYOR



### ***The Versatile, Low-Maintenance Conveyor For Today's Automated Production Line***

Cost-efficient automated production facilities depend heavily on the versatility, dependability and performance of their conveyor systems. Rapid Flow Q-Flex power & free conveyors deliver all that, in a system engineered to provide maximum control throughout your production operation.

### ***Optimum Flexibility***

With a Rapid Flow Q-Flex power & free conveyor, you can accumulate loads, allow loads to dwell, provide in-process storage, reroute and transfer product, hold product at work stations, and much more—all while the remainder of the conveyor line continues to operate without interruption.

### ***Versatile, Space-Saving Installation***

Installed overhead, off the production floor, Rapid Flow Q-Flex power & free conveyors take up no valuable floor space. They can change elevation, turn corners and accommodate diagonal banking without requiring major modifications to the facility's floor plan. The Rapid Flow Q-Flex system can include spur lines for added flexibility. And, your Rapid Flow Q-Flex system can be easily modified or enlarged should your production system demand it.

### ***Adaptable To Your Equipment***

Due to its simplicity and ease of installation, a Rapid Flow Q-Flex conveyor can adapt to virtually any material handling and production equipment you may presently be using.

If you are presently using (or are contemplating installing) computerized production systems, your Rapid Flow Q-Flex conveyor is well-suited to computerized controls.

### ***Low Maintenance***

The Rapid Flow Q-Flex conveyor is engineered for long life and simplicity of maintenance. In most cases, the only maintenance required is the periodic lubrication of the conveyor chain.

Rapid Flow Q-Flex is simply the most versatile, dependable conveyor for your money.



# RAPID FLOW Q-FLEX COMPONENTS

## The Heart Of Your System

### *Rugged, Precision-Engineered Components Form The Heart Of Your System*

Rapid Flow Q-Flex components have been designed to provide optimum dependability, flexibility, low maintenance, long life and interchangeability with other manufacturers of compatible power & free conveyors.

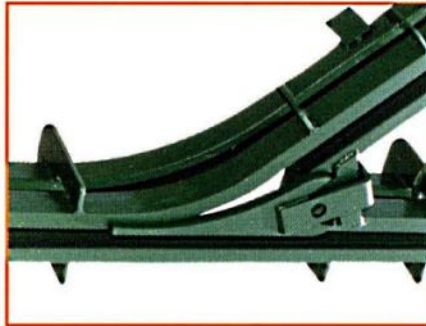


### Rapid Flow Q-Flex 3" Track

The Rapid Flow Q-Flex power & free conveyor uses a two-track system consisting of an upper power track, in which a Rapid Flex chain runs, and a lower free track which carries the load-bearing trolleys.

The enclosed power track protects the chain from dirt and debris, reducing maintenance and prolonging chain life.

The lower track consists of 3" channel sections, which are connected to the power track by heavy-duty steel yokes.



### Rapid Flow Q-Flex Track Switches

Rapid Flow Q-Flex switches are available in two configurations: entrance and exit.

Exit switches may be controlled either manually or automatically, and are usually air actuated. Entrance switches, which are used to return a carrier to the main conveyor from a work station or other off-line accumulation point, do not require power assistance.



### Rapid Flow Q-Flex Pusher Dogs

Drive power is transmitted to the free trolley by drop-forged pusher dogs, linked to the powerchain that runs in the upper track. The pivoted connector on the dog remains engaged to a trolley until it strikes the beaver tail on a stopped trailing trolley. The connector then pivots up, disengaging the dog from the leading trolley, permitting the trolleys to stop at an accumulation point.



### Heavy-Duty Rapid Flow Q-Flex Drives

The caterpillar drives for Rapid Flow Q-Flex conveyors have been designed for rugged use, long life and low maintenance. Available in speeds ranging from 2 fpm to 80 fpm, these dependable drives feature automatic overload cut-offs, to eliminate slip clutches and drive pins.



### Rapid Flow Q-Flex 3" Trolleys

In the Rapid Flow Q-Flex system, carriers are suspended from trolleys running in the free track of the conveyor. The trolleys run on ball bearing wheels with hardened races for long life and trouble-free operation.

Normally, two trolleys—a leading trolley and a trailing trolley, connected by a loadbar—will support each carrier, though more trolleys can be used. Pusher dogs connected to the power chain engage with the leading trolley to move the load. During accumulation, beaver tails on the trailing trolley lift the pivoted connectors on the pusher dogs, disengaging them from the trolleys and allowing the remainder of the conveyor system to continue operating without interference.



### Rapid Flow Q-Flex Universal Link Chain

The Rapid Flow Q-Flex power chain features alternating vertical load wheels and horizontal guide wheels for long life and low operating friction. At each pitch, universal joints provide maximum flexibility, in both lateral and vertical planes.





***Rapid Industries, Inc.***

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