

Rexnord® TableTop® and MatTop® Chains



Magnetflex® Curve Systems

FLATTOP NORTH AMERICA



Rexnord Industries, LLC

For more than one hundred years, Rexnord has provided superior power transmission, bearing, aerospace and specialty components to industry across the globe. We pride ourselves in commitment and dedication to the customer – from development to manufacturing, from installation to service.

This commitment and dedication is the centerpiece as we at Rexnord Industries begin our next century of growth. We are taking on new challenges and opportunities with a fresh look and eye on the future.

Precision. Power. Performance.

It's more than a new slogan, it's a promise – the Rexnord promise.

FlatTop Global's Vision

To be the best in the world at continuously improving customers' productivity through superior material handling solutions.

Rexnord Industries, Inc. Mission

To be a leading marketer and world class manufacturer of precision motion technology products & systems and provide superior growth and command sustainable competitive advantage.

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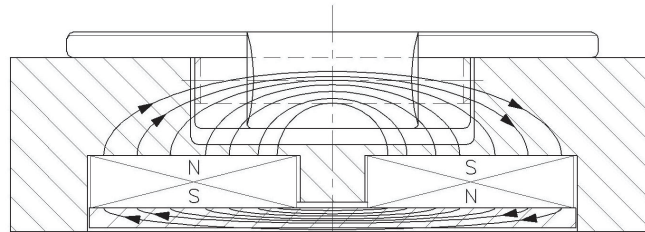
INTRODUCTION

The patented Magnetflex® system has become a worldwide standard in the beverage industry. The great advantages of this system have made it the choice for many OEM's. The unique design contains magnets underneath the track which insure that chains are kept in the curve while running. The Magnetflex system holds the chains in place by means of magnetic attraction either with steel chains or with steel pins in plastic chains. The advantage is that when the conveyors are not running the chain can be lifted out for cleaning, inspection, and maintenance. The magnetic attraction is constant during the life of the curve, which insures that the system is reliable and virtually maintenance free. The magnets make sure that all the chains lie perfectly flat in the curve without tilting or pulsation effects.

Advantages to a Magnetflex® curve system are:

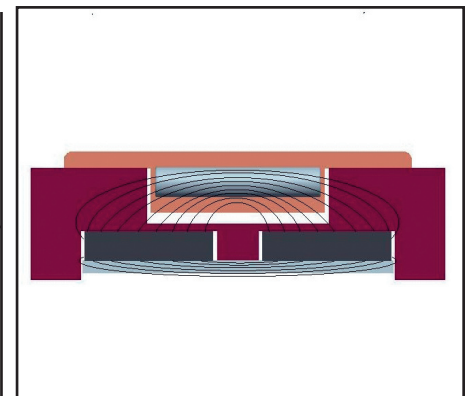
- Virtually any angle can be produced (i.e. angle can be anywhere from 1 to 180 degrees)
- The flow of product is constant (no sudden speed-changes)
- Transfers are not critical (only side transfers need to maintain equal speed)
- Easy to install and maintain
- Reliable over time
- Low noise
- Low pressure on the containers
- Conveyors with curves are self-clearing; no sweeping is required and no stranded products

The Magnetflex Combi System is a patented system that consists of machined, plastic curve tracks with permanent magnets integrated in the track. The Magnetflex curve is the only system where two magnets cover almost the complete base of the curve instead of just the track. Unlike other magnetic curves this results in a force that keeps down plastic chains with steel pins just as well as with steel chains. The magnetic field is transferred from one to the other magnet by means of a ferritic metal plate. The magnetic field is closed by the chain (or metal pin within the plastic chain) which is in the track as shown below.



This manual provides detailed information on the selection, installation, operation and maintenance of Magnetflex curve systems. The purpose of this manual is to:

- Assist with product selection
 - Provide installation and maintenance guides
 - Assist with troubleshooting and replacement information
-
- Magnetflex Style Carry and Return
 - Chain can be lifted out of straight and corner sections for cleaning and inspection
 - Must utilize Rexnord corners
 - Can be used to hold chain down in incline or decline applications
 - See Product Catalog for available products or refer to pages 6-8



Contact Rexnord Application Engineering if you need assistance at 262-376-4800

SAFETY CONSIDERATIONS

PRODUCT SAFETY: Products designed and manufactured by Rexnord are capable of being used in a safe manner; but Rexnord cannot warrant their safety under all circumstances. **PURCHASER MUST INSTALL AND USE THE PRODUCTS IN SAFE AND LAWFUL MANNER IN COMPLIANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS AND LAWS AND GENERAL STANDARDS OF REASONABLE CARE; AND IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**


SAFETY DEVICES: Products are provided with only safety devices identified herein. **IT IS THE RESPONSIBILITY OF PURCHASER TO FURNISH APPROPRIATE GUARDS FOR MACHINERY PARTS** in compliance with **MSHA** or **OSHA** Standards, as well as any other safety devices desired by Purchaser and/or required by law; and **IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**

COMPONENTS

Magnetflex® curves are available in four different materials to meet each conveyor application needs.

Curve Description	Material & Characteristics	Applications	Color	Lubricated condition
Combi A	High grade of polyethylene <ul style="list-style-type: none"> • Good wear and abrasion resistance 	<ul style="list-style-type: none"> • Suitable for most lubricated applications with steel and plastic chains • Suitable for dry applications if abrasives are not present • Suitable for low speed applications 	Purple	Dry or lubricated
Combi L	High grade special UHMWPE <ul style="list-style-type: none"> • Improved noise reduction • Improved wear and abrasion resistance 	<ul style="list-style-type: none"> • Suitable for medium to high speed applications with steel and plastic chains 	Blue/ Green	Dry or lubricated
Combi S	Special polyamide <ul style="list-style-type: none"> • Increased PV limits • Optimum wear and abrasion resistance 	<ul style="list-style-type: none"> • Suitable for dry running, high speed conveyors with plastic chains • Suitable for abrasive applications with plastic chains 	Gray	Dry running only*
Combi G	Special UHMWPE with ceramic additives <ul style="list-style-type: none"> • Superior abrasion resistance 	<ul style="list-style-type: none"> • Suitable for abrasive conditions with stainless steel chains 	Yellow	Dry or lubricated

*Consult Application Engineering to review applications

 Curves are typically sold in pairs, top and return together; however, separate top or returns can be supplied if requested

 All Rexnord Magnetflex chains MUST utilize Rexnord curves

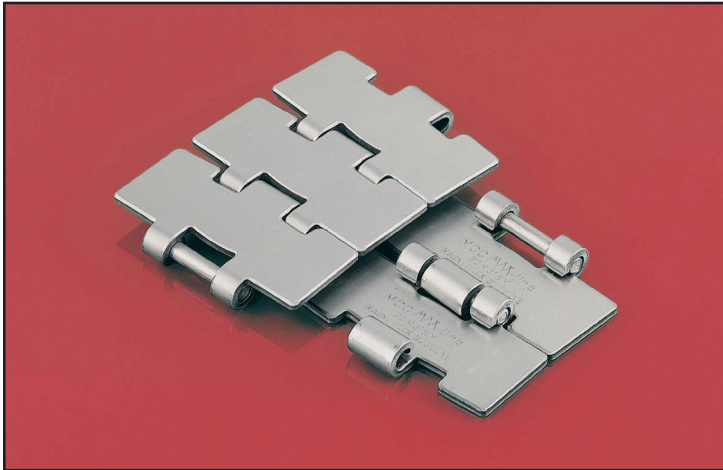
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COMPONENTS

Chains used with Magnetflex® curves

There are a variety of chains that can be used with the Magnetflex curve systems as follows:

Metal Magnetflex Chains



10 M 31 M

10 M 42 M

10 M 72 M

60 M 31 M

60 M 31 SM

60 M 84 SM

60 M 42 M

60 M 72 M

66 M 31 M

66 M 84 SM

66 M 72 M

60 M 75 M

66 M 75 M

Chain Nomenclature:

60 M 31 SM

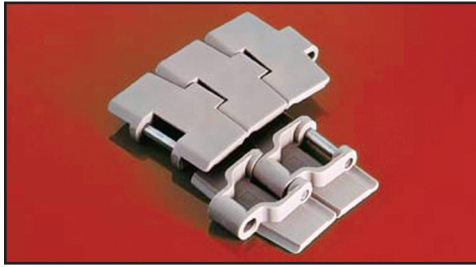
- 60 denotes chain series and material
- M denotes Magnetflex
- 31 denotes chain width (i.e. 31 = 3.25 in, 42 = 4.50 in, 72 = 7.50 in, 75 = 7.50, 84 = 84 mm)
- SM denotes type of chain (i.e. S = Slideline, M = Max-Line)

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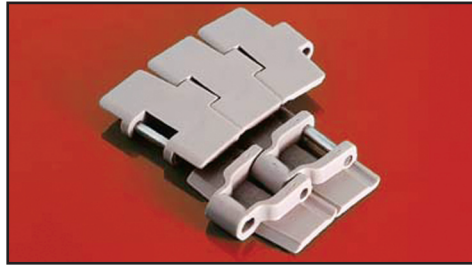
COMPONENTS

Chains used with Magnetflex® curves

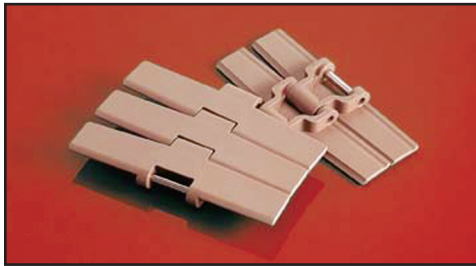
Plastic Magnetflex Chains



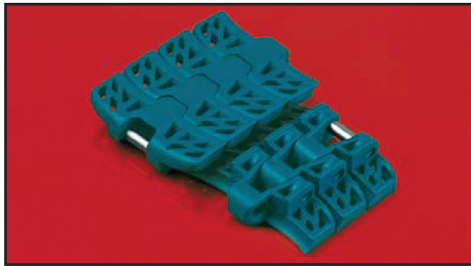
RHMP 325 Available in XL,
RHMP 84 HP™ & PS® materials
RHM 350
RHM 450



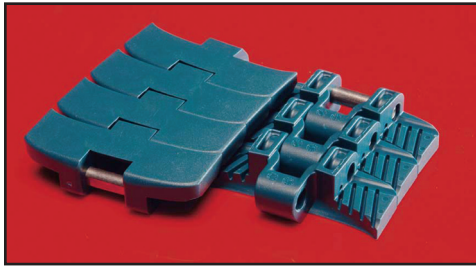
RHMDP 325 Available in XL &
RHMD 450 PS® materials
RHMDP 325



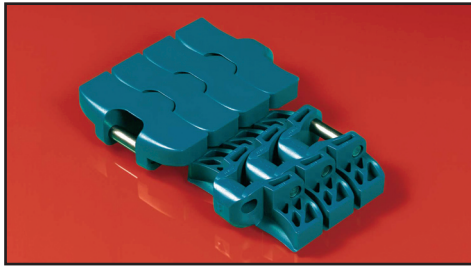
HDFM 750 Available in
HDFM 1000 XL material
HDFM 1200



FTM 1060 Available in XLG,
HP & PS materials



FGM 1050 Available in XLG,
HP & PS materials



FTM 1055 Available in XLG,
HP & PS materials

Chain Nomenclature:

RHMP 325 PS

RHMP denotes Radius Hinge Magnetflex Performance (i.e. RHMDP = Radius Hinge Magnetflex Thick Performance, HDFM = Heavy Duty Flex Magnetflex, FTM = Flat Top Magnetflex, FGM = Flush Grid Magnetflex)

325 denotes chain width (i.e. 325 = 3.25 in, 450 = 4.50 in, 750 = 7.50 in, 1000 = 10 in, 1200 = 12 in, 84 = 84 mm)

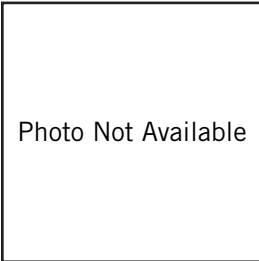
PS denotes the material (i.e. PS = Platinum Series®)

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COMPONENTS

Plastic Material Information

XLG (Extra Low Friction Green)



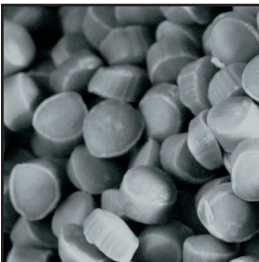
- Blend of acetal that provides good wear resistance and long service life due to low friction characteristics
- Blue-green color

HP™ (High Performance)



- Patented blend of acetal specifically formulated for dry running conveyors due to excellent friction characteristics
- Dark gray color

PS® (Platinum Series®)

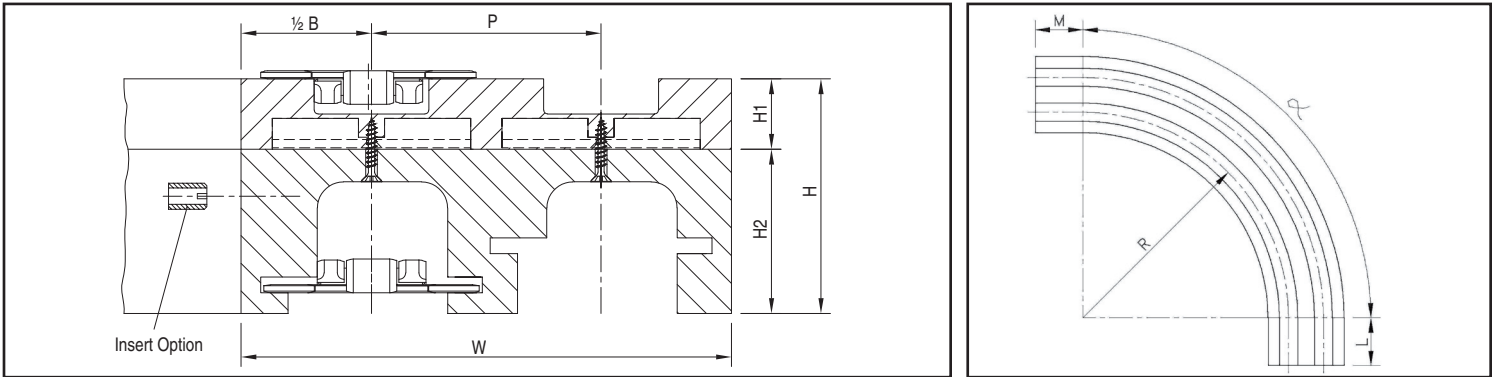


- A patented blend of acetal specially formulated for high speed conveying applications
- Light gray color

DESIGN INFORMATION

Dimension considerations:

The dimensions of the Magnetflex® curves can vary as listed below:



R denotes Radius

- Centerline of the first track
- Minimum side flex radius is determined by the chain and this information can be found in the Product Catalog or on page 15

H2 denotes Return Thickness

- Thickness of the lower track
- Standard thickness for most single file tracks is 2.17 in (55 mm)
- Standard thickness for multiple tracks is 2.48 in (63 mm)

P denotes Pitch of centerline of adjacent tracks

- Minimum value is equal to Chain Width + 0.047 in (+ 1.2 mm)

W denotes Width of multiple track curve

- Minimum width is equal to $B + n * P$ (n = number of lanes)

H1 denotes Carry Thickness

- Standard thickness for most chains is 1.06 in (27mm)
- Standard thickness for heavy duty chains is 1.26 in (32 mm)

B denotes Width of single track curve

- Minimum width is equal to Chain Width + 0.35 in (+ 9 mm) ; for 1050 & 1060 chains it is equal to Chain Width + 0.43 in (+ 11 mm)

L denotes Length of straight infeed in the carry track

- No minimum value
- Typical values are 0, 2.0 in (50 mm), 4.0 in (100 mm) and 5 in (125 mm)

M denotes Length of straight discharge in the carry track

- No minimum value
- Typical values are 0, 2.0 in (50 mm), 4.0 in (100 mm) and 5 in (125 mm)

- ✓ The size of the plastic sheet material and the size of the milling machine used to manufacture the curve will determine if the curve can be made in one piece or two

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APPLICATION INFORMATION

General recommendations on product selection based on application:

Glass handling applications:

- Standard metal Rexnord® TableTop® chains
- 7705 with FTM1055 Magnetflex® chains
- FT(DP)1005 with FTM1055 Magnetflex chains
- FT(DP)1000 with FTM1060 Magnetflex chains
- 8505 with FTM1060-K330 Magnetflex chains

✓ For curve selection see page 6

✓ Consult Rexnord Application Engineering for recommendations or for assistance in selecting the best suitable products for your specific application. Contact Application Engineering in Europe at +31 174 445 144 and in North America at 262-376-4800.

Can handling applications:

- Standard plastic chains - straight running and Magnetflex
- FG(DP) 1000 with FGM1050 Magnetflex chains
- 8506 with FGM1050-K330 Magnetflex chains
- 7705 or 7706 with FTM1055 Magnetflex chains

PET handling applications:

- FT(DP) 1000 with FTM1060 Magnetflex chains
- 8505 with FTM1060-K330 Magnetflex chains

High Speed Applications / PV Considerations:

PV denotes pressure and velocity. Materials sliding over each other heat up as a function of pressure and velocity. Each material and chain series has a PV-limit. If the result of pressure and velocity exceeds this limit; more heat is developed than can be transmitted (carried off) and the temperature rises. If the PV-limit of plastics is exceeded the chain and/or corner track material can melt. In general container conveying PV-limits play a role in dry applications only. When plastic chains run through plastic curves without any lubrication the PV-limit can be exceeded easily.

Speed or PV limitations for a specific chain and curve material combination can be determined by means of the Rexnord calculation program. To obtain the most recent calculation program download from Technical Support at <http://www.rexnord.com> or contact Application Engineering

Prior to performing chain pull calculations, the following information is needed:

- Chain style, material and width
- Wearstrip and corner track material
- Lubrication conditions (i.e. dry, water, soap & water, oil)
- Chain speed (FPM) or (MPM)
- Product weight (lbs/ft) or (kg/m)
- Product material
- Number of starts per hour
- Percent of time product accumulation occurs (i.e. slippage)
- Portion of conveyor where product accumulation occurs
- Conveyor layout with dimensions

✓ If the percent of allowable chain tension is 100% or less, your conveyor application is within chain capacity



The horsepower requirement the program calculates is the “design horsepower” that is required to power the conveyor based on the input parameters. Additional considerations should be made for the type of drive used, efficiency losses in

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APPLICATION INFORMATION

Static Electricity Considerations:

When two materials slide over each other without lubrication, static charges can develop. This happens with plastic bottles or metal cans sliding on plastic chains and also with chains running on wear strips. Possible consequences of static charging are:

- the electrically charged parts attract dust from the environment
- highly sensitive controls can be influenced
- operator can get an electrical shock when they come near
- sparks may occur

Static electricity can be reduced in many ways. The most effective way is wet lubrication. However in many applications this is not an option. The charges can be neutralized locally by blowing ionized air. Some products may be electrically conductive (cans) and in contact with conductive, earthened guiderails charges can be neutralized.

Incline and decline Conveyors

One of the benefits of the Magnetflex system is that chains can be lifted out of their track for maintenance and cleaning purposes. The curve itself should always be placed level. Inclines and declines are possible before and after curves, however some caution should be paid with conveyors with inclined or declined parts in order to prevent chains from lifting out of the curve.

Inclines

- An incline from idler to curve is not a problem (the chain is being pulled in the track)
- An incline after the curve (toward the drive) is possible; however a horizontal section of at least 40 in (1 meter) is needed

Declines

- A decline from curve toward the drive is not a problem
- A decline from idler to curve is possible provided that a horizontal section between decline and curve entry is used

✓ The maximum angle depends on many factors such as product stability, lubrication, chain material, product material, etc. A general rule of thumb is to use these guidelines for maximum incline/decline angles:

- Steel chains (dry) = 4 degrees
- Plastic chains (dry) = 4.5 degrees
- Plastic chains (lubricated) = 2.5 degrees
- Rubber top chains (dry) = 20 degrees



It is not Recommended to utilize LBP chain in an incline or decline application

LUBRICATION RECOMMENDATIONS

Lubrication is recommended whenever the application permits. It not only reduces friction, thereby reducing chain tension; but also, greatly improves the wear life of the chain and wearstrips. Lubrication offers a constant cleaning effect of both the chain and wearstrip and can also reduce static.

General Recommendations

Lubrication should contact both the chain and wearstrip

When lubricating side-flexing Rexnord® TableTop® chains, the lubricant must be applied at the entrance of the inside corner track

Metal side-flexing chains should be lubricated in the corners

Depending upon the application, lubrication requirements may vary. Lubricant quality and lubrication frequency can have a great affect on the longevity of the chain. For most common applications, any ISO 68 grade lubricant is satisfactory. For applications with special considerations such as high temperature, chemical compatibility, FDA requirements, please contact your lubrication supplier

General Types of Lubricants

Water - Only utilize with corrosion resistant materials. Can be used as a general lubricant; however, it is not as effective as other types due to friction and chain cleaning properties

Water soluble lubricants and soaps - Only utilize with corrosion resistant materials. These are excellent lubricants which also help clean the chain



Hard water can cause calcium to build up on the chain and cause premature wear and elongation. If hard water is utilized, it is recommended to use water soluble lubricants and soaps or to add water softeners. For more detailed information contact Application Engineering

Oil base lubricants - These are vegetable, mineral oils or grease which offer high lubricity. Can be used with plastic or metal materials. Recommended to be used on all metal chains whenever practical. Food grade oils are available

Selective Lubrication

In some applications, the presence of a lubricant cannot be tolerated. For these applications, it is recommended to utilize chains made of HP or PS acetal material with Nylatron® corners, which offers the lowest coefficient of friction

Metal Unit Link Chains Stainless Steel

Stainless steel chains can be run dry; however, lubrication will greatly increase their wear life and help reduce noise



Metal side-flexing chains should **ALWAYS** be lubricated in the corners



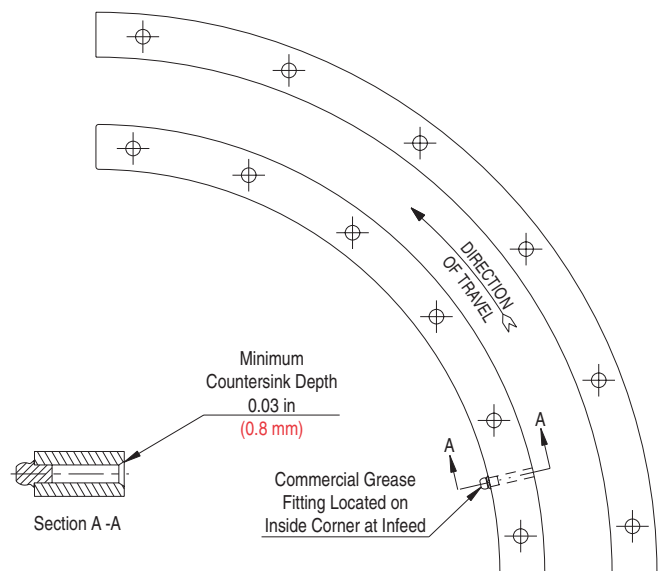
The Combi-S curves are made of Nylatron® material, which should not be lubricated



To eliminate or reduce lubrication, contact Rexnord Application Engineering to conduct a Run Dry Survey



For more information on lubrication types, compatibility, methods, contact a lubricant manufacturer



Methods of furnishing lubricant to chain thrust surface

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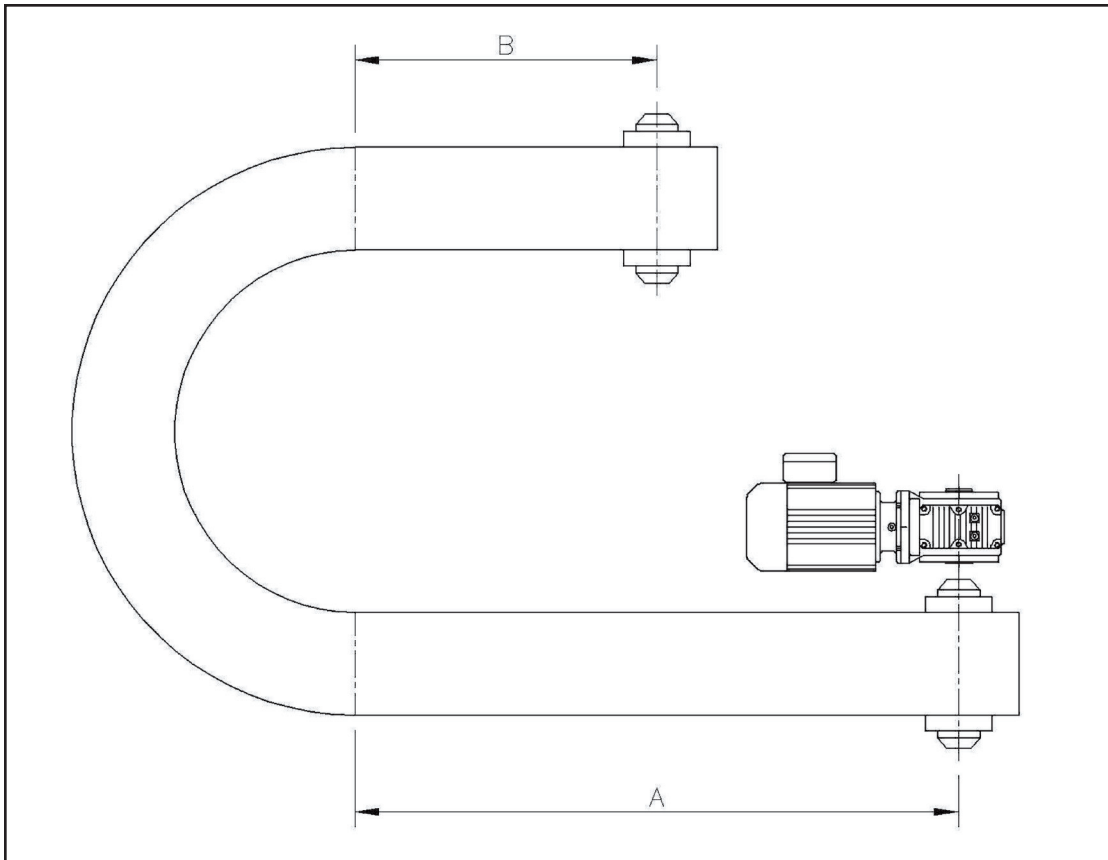


CONVEYOR LAYOUT

Conveyor Layout Recommendations:

General Recommendations

- It is recommended to locate the curve as close as possible to the idler, resulting in lower chain tension and maximizing chain life
- Soft start motors are always recommended. Sudden start-ups must especially be avoided in situations where the section from idler to curve is full and the curve and section from curve to drive is empty
- Minimum lengths before and after a curve are as follows:
 - From idler to curve: B = 20 in (500 mm)
 - From curve to end drive: A = 30 in (750 mm)



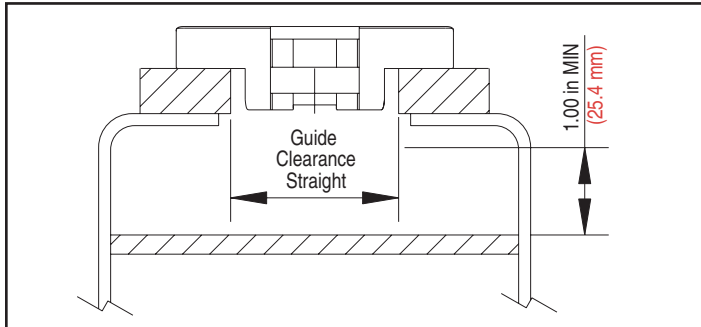
- ✓ A and B dimensions do not depend on the angle of the curve (i.e. the same dimensions apply for a 30, 45 or 90 degree angle)
- ✓ For applications in which a straight section is required between two curves it is recommended to have a minimum length of 20.0 in or 500 mm
- ⚠ CAUTION It is not recommended to accumulate product in the corners. Controls should be added to control accumulation on the conveyor
- ⚠ CAUTION The layout shown above should be designed to allow broken glass to self clear out of the conveyor track, this is especially critical in a high glass breakage area

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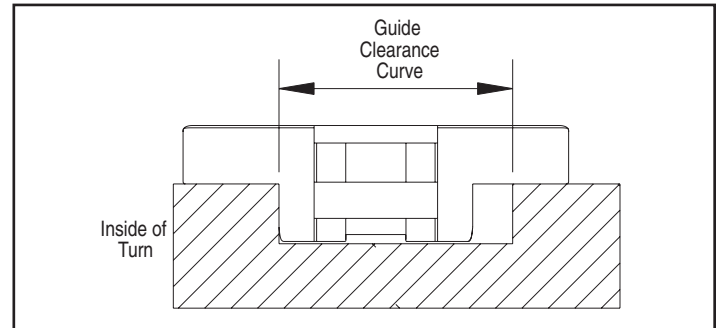
CONVEYOR LAYOUT

Carry Ways

Guide clearance is critical for side-flexing chains. For guide clearance dimensions of individual chains see the tables below or Product Catalog



Typical Construction – Straight Section



Typical Construction – Corner Section

General Comments for Multiple Strand Conveyors

- Adjacent strands should share a common wearstrip
- Key all sprockets on the head shaft
- Key only one sprocket on the tail shaft, preferable the center strand
- For minimum side-flex radii of individual chains, see the table below

Guide Clearance Table						
Chain Style	10 M 45 M 60 M	60 M 75 M	RHM	RHMD	HDFM	1050 1055 1060
Guide Clearance Straight	1.73 in 44.0 mm	2.36 in 60.0 mm	1.73 in 44.0 mm	1.73 in 44.0 mm	2.36 in 60.0 mm	1.73 in 44.0 mm
Guide Clearance Curve	1.73 in 44.0 mm	2.36 in 60.0 mm	1.73 in 44.0 mm	1.73 in 44.0 mm	2.36 in 60.0 mm	1.73 in 44.0 mm

Side-flex Radius Table				
Chain Series	Chain Width (inch)	Chain Width (mm)	Minimum Side-flex Radius (inch)	Minimum Side-flex Radius (mm)
10 M	3.25, 4.50, 7.50	82.6, 114.3, 190.5	19.69	500
45 M	3.25, 4.50	82.6, 114.3	19.69	500
60 M	3.25, 3.30, 4.50, 7.50	82.6, 84.0, 114.3, 190.5	19.69	500
60 M 75 M	7.50	190.5	33.86	860
RHM	3.25, 3.30, 4.50	82.6, 84.0, 114.3	17.99	457
RHMD	3.25, 4.50	82.6, 114.3	17.99	457
HDFM	7.50, 10.00, 12.00	190.5, 254.0, 304.8	24.02	610
1050 / 1060	3.31	84.0	19.69	500.0
1055	3.31, 4.50	84.0, 114.3	19.69	500.0

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CARRY WAYS

Wearstrip Materials

Nylatron® (Nylon with Moly Filler)

- Recommended for dry applications due to low wear and low friction
- Especially suited for dry operation on thermoplastic side-flexing chain corners due to its high PV (Pressure-Velocity) rating
- Typically not recommended in wet applications because it will absorb moisture and expand (if used in wet applications, allow clearance for expansion and movement of fasteners)

Stainless Steel

- Recommended for corrosive, abrasive or high temperature applications
- Abrasive particles are less likely to embed in metal wearstrips in comparison to plastic
- A cold rolled austenitic grade is recommended which offers the best corrosion resistant properties
- Recommended one quarter hard temper (25 to 35 Rc) with any chain material, especially with thermoplastic
- Softer annealed grades of austenitic are NOT RECOMMENDED. Adverse interaction between the chain material and the soft stainless steel might develop. When this happens, the resulting wear debris consists almost entirely of finely divided stainless steel particles, nearly black in color, similar to molydisulfide or graphite. The wear of the stainless steel might be rapid while the thermoplastic chain by contrast exhibits only slight wear
- Martensitic stainless steel can also be used when heat treated (25 to 35 Rc); however, it is not as corrosion resistant as austenitic
- Hardness is more critical than grade for better wear resistance

UHMWPE (Ultra High Molecular Weight Polyethylene)

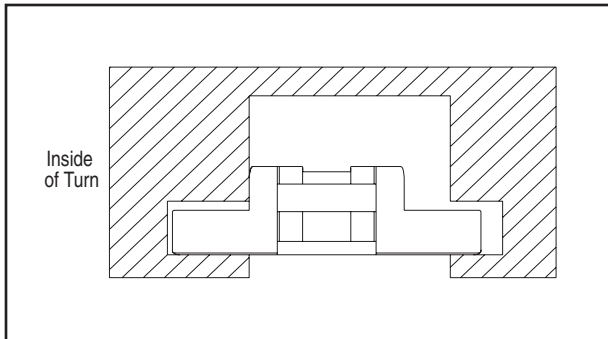
- Recommended for dry or wet applications on straight or side-flexing conveyors
- Not recommended for abrasive conditions where particles may embed in the surface and wear the chain
- Provide lower coefficient of friction than metals
- Not affected by moisture and more resistant to chemicals than nylon
- UHMWPE materials can be supplied with various fillers:
 - Ceramic / glass
 - Conductive
 - Oil / wax

CONVEYOR LAYOUT

Return Ways

Rexnord® TableTop® and MatTop® chains can be supported in a variety of ways (i.e. sliding bed, roller return).

Magnetflex® Corner Return

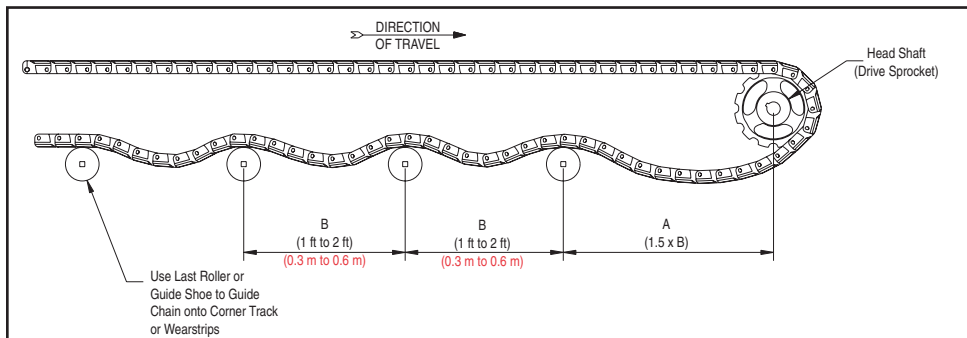


General Recommendations:

- Allow for thermal expansion of wearstrips
- All wearstrip and corner track surfaces that contact the chain should be in line and smooth (i.e. utilize counter sunk hold down screws, remove burrs)

Roller Return

The first roller should be located far enough away from the head sprocket to allow for proper catenary sag



- Dimension “A” should be 1.5 to 2 times greater than Dimension “B”
- Roller diameters for these chains are typically:
 - For 1050, 1055 & 1060 chains: 1.6 in (40 mm) minimum
 - For 10 M, 45 M, 60 M, RHM, RHMD & HDFM: 2.4 in (60 mm) minimum
- Insure rollers **ALWAYS** spin freely
- If rollers do not turn freely, uneven wear patterns or scalloping on the top carry surfaces of the chain can occur
- See the table below for minimum back-flex radii for specific chains

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CONVEYOR LAYOUT

Transfers

Smooth transfer of the conveyed product from one chain to another is essential. The 1050, 1060 and 1055 MatTop® chains are uniquely designed to have the same thickness of the popular MatTop® 1000, 8500 and 7700 chains to insure smooth transfers with the added benefit of using a common wearstrips.

Chain Thickness: 0.34 in (8.7 mm)

- 1050 TableTop Chain Series
- 1060 TableTop Chain Series
- 8500 MatTop Chain Series
- 1000 MatTop Chain Series

Chain Thickness: 0.50 in (12.7 mm)

- 1055 TableTop Chain Series
- 7700 MatTop Chain Series
- 1005 MatTop Chain Series



HP8506 and HP1050 Chains

- ✓ For conveyors using multiple strands of chain, key all sprockets on the head shaft and key only one sprocket on the tail shaft, preferably the center strand
- ⚠ CAUTION When several chains run side by side, such as on multiple width conveyors' and combiners or decombiners, make sure the return chains do not interfere with each other
- ✓ A general rule of thumb on parallel transfers is that the angle between chain and guiderail with PET is <15 degrees and with Glass & Cans is <25 degrees
- ✓ A general rule of thumb for the ratio between length and width should be between 2.5 and 5 to avoid high speed reduction and to also keep acceptable conveyor lengths. The 2.5 ratio is used en masse conveyors and the 5 ratio is typically used in high speed, single track conveyors
- ✓ The angle of the guide rail with the chain is important to reduce the pressure on the guide rail and keep the speed reduction at an acceptable level
- ✓ The angle of the guide rail should be designed so that the product does not travel over the area of the sprocket in which there is an up and down movement of the chain due to the chordal action, this is especially critical for products that tip easily
- ⚠ CAUTION For glass bottle lines consideration in the conveyor design must be taken into account to eliminate or reduce the amount of broken glass getting into the conveyor frame

Contact Rexnord North America Application Engineering if you need assistance at 262-376-4800

CONVEYOR LAYOUT

Catenary

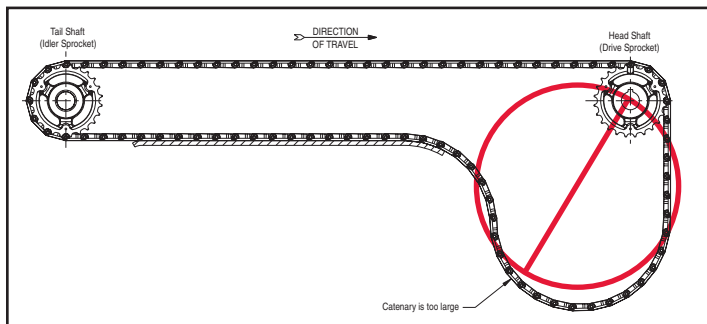
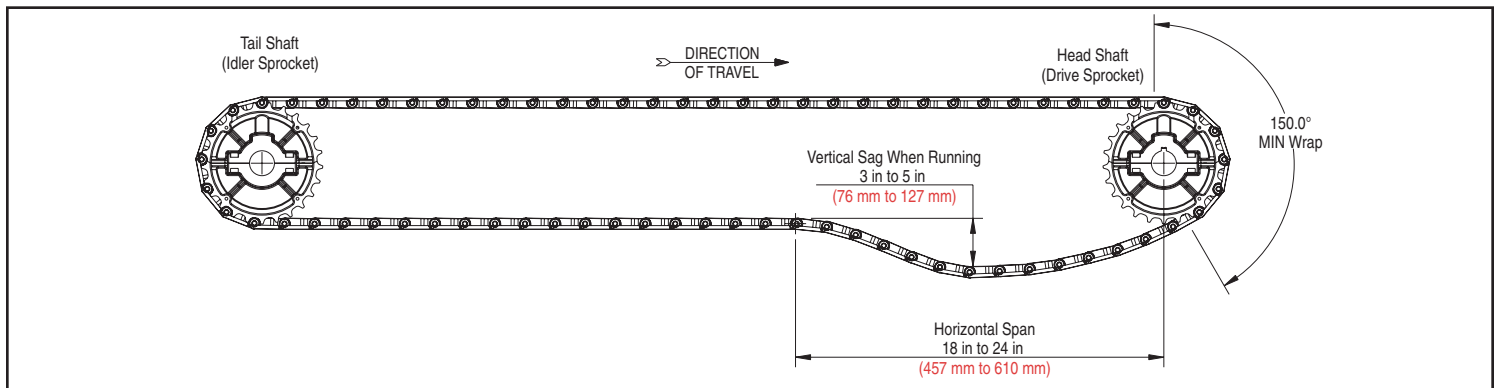
- The function of the catenary is to allow a place for excess chain to accumulate
- Rexnord® TableTop® chains should never be run tight
- The catenary sag should be measured when running
- If the catenary is excessive or increased due to wear, it should be adjusted by removing links to obtain the proper sag
- Take-ups are typically not recommended
- The catenary should be as close to the drive as possible



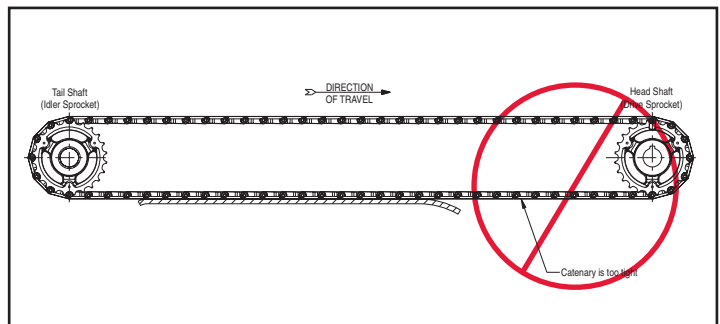
The catenary sag area must be free of all obstructions, such as frame cross-members, supports and drive components, which can damage chain or inhibit proper catenary sag

Typical end drive catenary arrangement

- Vertical sag when running 3 to 5 in (76 to 172 mm)
- Horizontal span 18 to 24 in (457 to 610 mm)



Excessive Catenary Sag



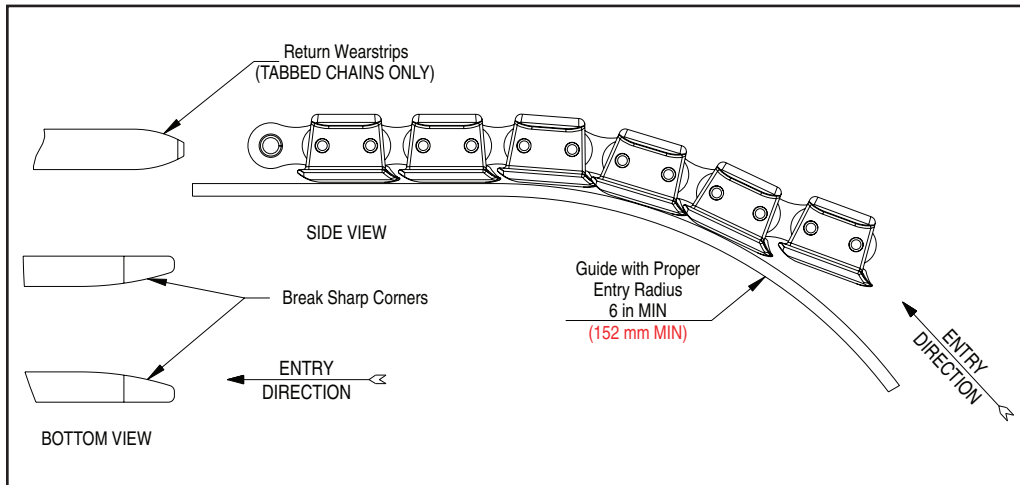
Inadequate Catenary Sag

Contact Rexnord EU Technical Support at +31 174 445 144

CONVEYOR LAYOUT

Entry Radius

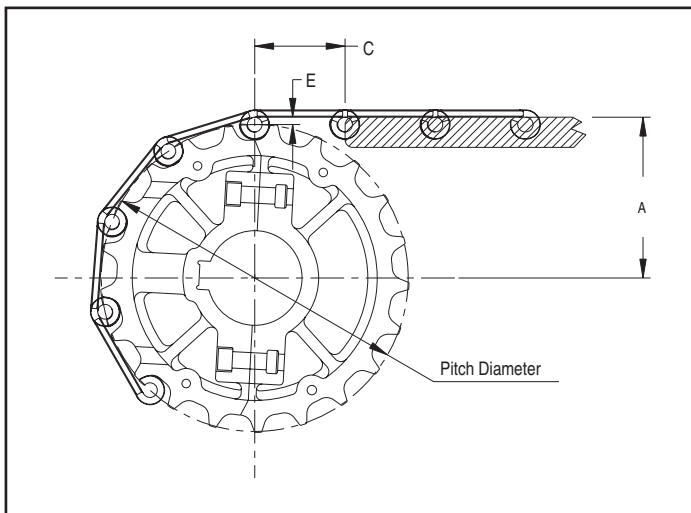
- Provide a generous entry radius to the return section which permits the chain to feed smoothly into the return ways
- At the entry of the return wearstrips, provide rounded corners to prevent catching or snagging of the chain flights
- Refer to page 22 which provides information on the installation of the guide shoe



CONVEYOR LAYOUT

Sprocket and Wearstrip Location

- The distance from the end of the wearstrip to the sprocket shaft centerline should equal dimension “C”; otherwise, the wearstrip will interfere with free articulation of the chain as it enters the sprocket
 - The leading edges of the wearstrips should be bevelled
 - The following formulas and dimensions used in conjunction with the figure will give the proper shaft and wearstrip positioning
- Sprocket Location for Magnetflex® Chains
 - A = (Pitch Diameter/2) + E
 - C = One Chain Pitch (which ensures support under chain at all times)
- See table below for C & E dimensions



Chain Series	Shaft Drop Values			
	“C” Dimension		“C” Dimension	
	in	mm	in	mm
10 M, 45 M, 60 M	1.50	38.1	0.126	3.20
RHM, RHMD	1.50	38.1	0.138	3.51
HDFM	1.50	38.1	0.185	4.70
1050 & 1060	1.00	25.4	0.138	3.51
1055	1.00	25.4	0.530	13.46

CURVE INSTALLATION AND MOUNTING INFORMATION

Magnetflex® curves can be installed in the conveyor frame in different ways.

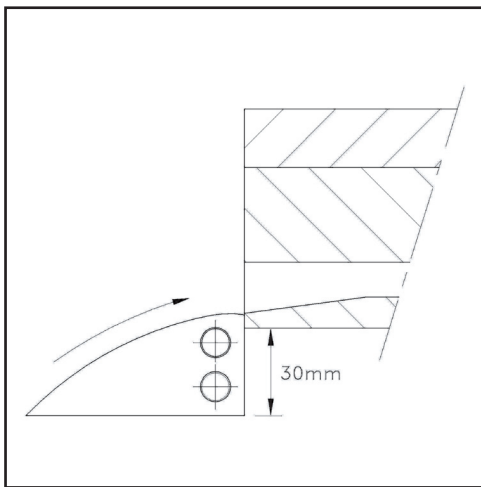
- The upper and return part can be supplied bolted together and with inserts to mount the assembled curve into the conveyor frame
- The option most often used in multiple track curves is to deliver the upper and return part separately. They are then mounted against a conveyor crossbar
 - In this case both upper part and return part are equipped with inserts and/or holes
 - In both build-in options the hole and inserts can be standard or customized per customer specifications

Position of guide shoes

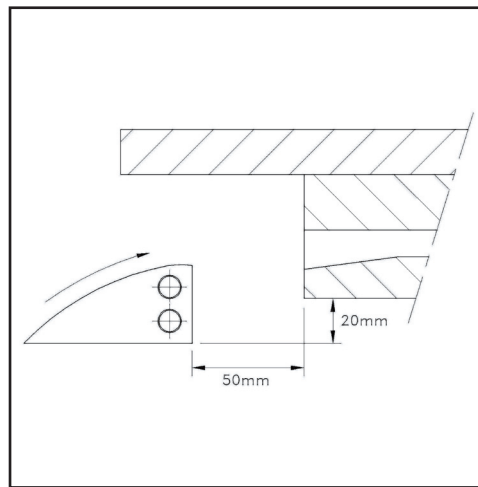
Most Magnetflex curves are equipped with a return guide shoe.

- This machined shoe is meant to bring the chain at the right level to enter the return part of the curve
- The position of the return guide shoe is determined by the design of the return part (level or staggered) and by the chain type
- A staggered design is used when the pitch between the tracks is too small to allow the chains to run at the same level in the return
 - In that case two levels of tracks are made in the return part: one level in which the uneven tracks (1, 3, 5, etc.) run and one in which the even tracks run
 - The height of a staggered return part is typically 2.48 in (63 mm) and is always higher than that of a non-staggered return which is typically 2.17 in (55 mm)

For smooth chain operation it is important that the chain enters the return part at the correct height. In the sketch below you find the recommended position of the guide shoe at the infeed of the return part.



Return part at the same level



Staggered return part



All transitional areas should contain a radius or chamfer to prevent a “catch point”



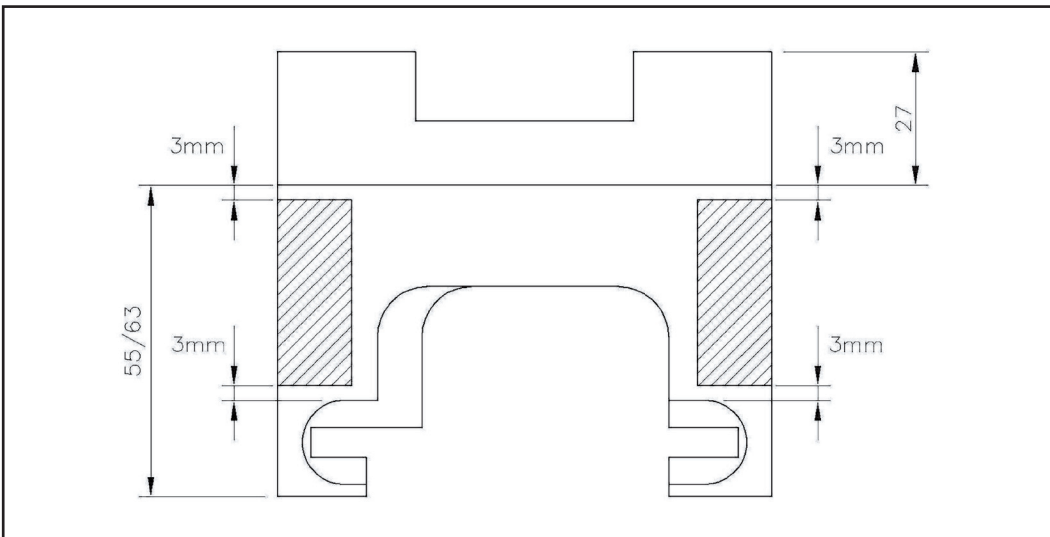
The guide shoe or rollers must be positioned so that the chain enters the curve at the same level. If the chain is too low it will result in excessive wear on the top surface of the chain

A special execution of a Magnetflex curve is CIP (Cleaning in Place) curve, equipped with spraying nozzles and tubes. It is opened up as much as possible to allow for good cleaning of the steel or plastic chains and curve profile from the inside of the curve. The CIP curve can be integrated in an existing CIP system.

Contact Rexnord North America Application Engineering if you need assistance at 262-376-4800

CURVE MOUNTING INFORMATION

Location to drill for mounting of inserts:



General Recommendations

- When curves are installed they can be installed as a set (upper and return together) or separately
- When installed as a set; make sure the curve is well supported. This is especially critical on curves wider than 16 in (400 mm) and generally relates to applications with 4 tracks or more. Insure proper support by using cross-members to avoid sagging of the curve under the weight of the products
- When installed separately, cross members between upper and return part are always recommended to support the upper part and mount the return
- Infeed of curves (the position where the chain enters) need to be chamfered to ensure smooth chain operation and avoid catching
 - Most curves come with chamfered infeeds but always check before starting the conveyor if the chamfer is sufficient
- At positions where wear strips tie in with curves and vice versa, the top surface must be level
 - A small step-down (depending on the product 0 to 0.04 in (0 to 1 mm)) maximum downstream is typically acceptable. Any step up is not acceptable and will result in irregular chain operation and uneven wear

CLEANING RECOMMENDATIONS

General Guidelines

Soap and water lubrication provides a continual cleaning action on conveyors which helps to reduce or eliminate the build up of dirt, debris and spilled product such as syrup, beer, soda, etc. Dry running lines are possible, however, considerations must be made to insure conveyors are kept clean. Build up of debris can result in increased wear on the chain, wearstrips and sprockets. This build up can also increase friction and backline pressure which could cause product damage. Therefore, a thorough and regular cleaning procedure is very important to the successful operation of conveyor line.

- ✓ If conveyors are going to sit idle for a long time before startup, they should be covered with plastic or drop cloth to minimize dirt and debris that can settle into the chain and tracks
- ✓ Before start-up, remove any tools, fasteners, or other items that may have been left behind. Thoroughly clean chain, wearstrips and tracks (carry & return) with air hose or high pressure water spray

Recommended Cleaning Frequency

1. Completely Dry Lines - These lines should be cleaned daily to obtain maximum sanitation and performance. At the very minimum, rinse daily and thoroughly sanitize weekly
2. Partially or Lubricated Lines - Thoroughly sanitize these lines weekly

General Guidelines for Cleaning Solutions

1. Recommended pH of 4-10
2. Avoid chlorine (bleach), Ammonia and Iodine
3. With plastic chains, avoid Phosphoric Acid (found in many stainless steel cleaners)
4. Refer to Corrosion Resistance Guide in the Engineering Manual to determine the compatibility of cleaners used on chain and other conveyor components or contact Application Engineering



Before working inside conveyor frames or coming in contact with conveyors components, always make sure all drives are locked out and tagged



All cleaners and lubricants must be compatible with chain, wearstrips and sprocket materials - see item 4 listed above. If component materials or chemicals are not listed in the Corrosion Resistance Guide, contact Application Engineering or your cleaner/lubricant manufacturer for assistance



Failure to follow items 1 through 4 above can cause chain damage and/or failure

CLEANING RECOMMENDATIONS

Methods of Cleaning

1. Periodic high pressure, hot water rinse or steam cleaning should prove satisfactory. Spray the chain in place on each conveyor, both on the carry and in the return sections. This is usually done with the conveyors running, however, the chain can also be stationary. For easy access to the undersides of the chain in the carry and return ways, some manufacturers provide “clean-out” holes in the side frames
2. Warm water and mild soap are commonly used to clean the conveyors
3. Foaming agents or other chemical cleaners may be used if they are compatible with the conveyor materials as shown in the Corrosion Resistance Guide in the Engineering Manual. Carefully follow the instructions provided by the manufacturer to determine proper concentration and proper, safe use and disposal
4. In some cases, such as PET bottle lines, cleaners or combination of cleaners and lubricants are applied continuously or intermittently. Several types of automatic application systems are available
5. In extreme situations, it may be necessary to periodically clean the chains with a bristle brush. Clean the chain in place on the conveyor, both on the carry and in the return sections



Keep water, steam and chemicals away from electrical disconnects, motors, photo eyes, etc.



The main objective is to clean the chain carrying surface, the underside and also the wearstrips and tracks



Inspect conveyors often. Remove broken or jammed containers or pieces of containers as soon as they are detected. Use cleaning solutions to clean away excessive spillage



It is recommended that steam not be held on chains for prolonged periods, chains may deform or become permanently damaged



Strong caustic agents should not be used with plastic chains



Always thoroughly rinse all cleaning agents completely off of the chain and conveyor frame. Make sure that the underside of the chain is also rinsed thoroughly. If chain and conveyor frames are not thoroughly rinsed off the chemicals from cleaners or lubricants can build up on the conveyor and cause chemical attack damage



It is recommended to flush chain, carry and return tracks with high pressure water solution to remove debris in the track and on the chain (i.e. broken glass, dirt, etc.)

TROUBLESHOOTING GUIDE

SYMPTOM

Rapid or unusual wear pattern

Cause

1. Sprocket misalignment
2. Obstruction cutting or scraping the chain
3. Improper wearstrip material selection for the application
4. Build up or embedding of abrasive materials on the surface of the wearstrips
5. Inadequate guide clearance in which guide tracks may be interfering with the chain A. Correct the shaft mounting position and sprocket alignment

Correction

1. Correct the shaft mounting position and sprocket alignment – see page 21
2. Locate the origin of the cutting and remove the obstruction. Replace any wearstrips that have foreign particles embedded in them
3. See page 16 for wearstrip material selection
4. Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
5. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 15. Pull a short piece of chain through the tight section before reinstallation. Check that there is a smooth transition between straight and curved sections

SYMPTOM

Uneven wear pattern on the bottom of the chain flights or top plates

Cause

1. Chain is riding uneven in the track
2. Grooved wearstrips
3. Obstruction in carry way

Correction

1. Check to insure the wearstrips are even and level. Modify the wearstrips as required by adding or deleting shims
2. Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
3. Remove obstructions

SYMPTOM

Rapid or unusual wear pattern on top of chain flights or top plates

Cause

1. Improper return roller diameter
2. Roller has stopped spinning freely

Correction

1. Refer to page 17 for the minimum back-flex radius
2. Insure that all return rollers are spinning freely. Utilize Marbett® bi-material rollers

- ✓ • Unusual wear patterns on the top of the chain usually indicate return way problems
- Unusual wear patterns on the bottom of the chain usually indicate carry way problems
- Excessive wear on the thrust surface of the chain usually indicates corner track or disc problems
- Excessive wear on the edges of the chain usually indicate tracking problems or inadequate clearance

Contact Rexnord North America Application Engineering if you need assistance at 262-376-4800

TROUBLESHOOTING GUIDE

SYMPTOM

Scratching or scuffing on the chain

Cause

1. Normal wear
2. Abrasive product or environment

Correction

1. All chains will experience some superficial surface scratching. This occurs on both dry and lubricated lines; however, it is most apparent in dry running conditions. The overall performance of the chain is not affected due to these superficial scratches
2. See pages 6, 9 & 16 for chain and wearstrip material selection

SYMPTOM

Shavings of plastic debris is observed on chain or conveyor (i.e string like plastic material)

Cause

1. Sharp edge or obstruction on wearstrip of the frame may be scratching the chain links
2. Abrasive materials are embedded in the surface of the wearstrips or corner tracks
3. High speed and/or poor lubrication
4. Rough surface finish on the wearstrip or corner track
5. Tight spots or chain binding within the path of chain travel
6. Normal break-in wear

Correction

1. Locate the origin of the cutting and remove the obstruction
2. Remove abrasive build-up or replace wearstrips with a harder material, if necessary
3. Reduce speed or reduce friction with improved lubrication. If neither of these options is practical, select a chain/wear strip combination with lower friction values
4. Grind, polish or replace wearstrips as required to ensure a smooth finish
5. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 15
6. Periodic cleaning during the break-in phase is recommended to minimize the accumulation of dust debris

SYMPTOM

Rapid sprocket wear

Cause

1. Abrasive environment
2. Incorrect shaft location
3. Incorrect sprocket selection

Correction

1. Clean conveyors frequently to reduce the amount of abrasives present. Contact Application Engineering to review sprocket material options
2. Correct the shaft mounting position and sprocket alignment – see page 21
3. Use hardened sprocket teeth where required

TROUBLESHOOTING GUIDE

SYMPTOM

Chain jumping on sprocket teeth

Cause

1. Excessive chain elongation
2. Improper shaft positioning or sprocket misalignment
3. Foreign material lodged in the sprocket tooth pockets or worn sprockets
4. Sprockets have developed a hooked tooth profile

Correction

1. Replace the chain and sprockets as required
2. Correct the shaft mounting position and sprocket alignment – see page 21
3. Clean or replace the sprockets as required
4. Replace the chain and sprockets as required. Use stainless steel sprockets where required

SYMPTOM

Premature chain elongation

Cause

1. No catenary or an improper catenary sag may cause additional tension on the chain
2. Abrasives getting into the chain joints
3. High load

Correction

1. Allow for proper catenary within the conveyor. Refer to page 19 for proper catenary dimensions
2. Clean or replace the chain as required
3. Remove the source of the high loads. Replace the damaged links. Check chain loading

SYMPTOM

Chain is jumping out of the curve track

1. Curve is not level
2. Improper inside surface of the curve track
3. Improper incline or decline
4. Obstruction or catch point is present
5. Debris such as parts of bottles, metal parts, etc. could be carried with the chain into the curve and return section

Correction

1. Check the curve to insure that it is level with the wearstrips
2. Check the inside of the track (the surface that guides the hinge) and insure it is vertical and intact.
3. Inclines and declines before the curve and declines after the curve are possible, however, careful consideration must be made - refer to page 12 for guidelines

TROUBLESHOOTING GUIDE

SYMPTOM

Chain is squealing or chattering

Cause

1. Chain is trying to pass through a tight section of the conveyor
2. Improper corner radius
3. Rough surface finish on the inside corner track
4. Improper corner track material selection
5. Improper corner track selection
6. Vibration within conveyor frame

Correction

1. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 15. Pull a short piece of chain through the tight section before reinstallation. Check that there is a smooth transition between straight and curved sections
2. Make sure corner tracks comply with the minimum side-flex radius – see page 15
3. Check to insure that there is a smooth finish on the wearstrips where they contact the chain (i.e. no rough saw cuts or machining marks). Replace corner tracks as necessary
4. Check to insure that there are no foreign particles embedded in the corner tracks. Review page 6 for corner track material information or contact Application Engineering
5. Selective lubrication may be required
6. Make sure structure is solid and secure

Under unfavorable conditions (i.e. lay-out, speed, load and other external factors such as contamination) dry running chains can produce noise. The risk that noise is being produced in Magnetflex curves is not eliminated, however, it is lower than conveyors utilizing other curve systems. Noises can be reduced or eliminated effectively by cleaning up and lubricating the system. If lubrication is not an option, noise can sometimes be reduced by changing the curve or chain material. In other cases the conveyor should be split (i.e. adding an extra drive and therefore, reducing the load).

SYMPTOM

Plastic chains appear cracked or are discolored (white residue is found on the chain)

Cause

1. Chemical attack due to product spillage
2. Use of strong chemical cleaners or lubricants

Correction

1. Refer to corrosion resistance guide – see page 32 in the Engineering Manual
2. Refer to corrosion resistance guide – see page 32 in the Engineering Manual. Review methods of cleaning – see pages 24 & 25 in the Engineering Manual

SYMPTOM

Metal chains or pins appear pitted or corroded

Cause

1. Chemical attack due to product spillage
2. Use of strong chemical cleaners or lubricants

Correction

1. Refer to corrosion resistance guide – see page 32
2. Refer to corrosion resistance guide – see page 32. Review methods of cleaning – see page 24 & 25

TROUBLESHOOTING GUIDE

SYMPTOM

Products tip or are unstable at chain transfers

Cause

1. Incorrect speeds at transfers
2. Incorrect chain elevation at discharge conveyor
3. Improper guide rail location

Correction

1. It is recommended to keep infeed and discharge conveyor speed differentials minimized
2. Ensure that proper chain heights are set on adjacent strands to prevent tippage
3. Adjust guide rails as required

SYMPTOM

Chain is melting on the thrust surface and/or the underside of the top plate

Cause

1. Chain is experiencing a PV failure – plastic material melts due to excessive load and/or high speed
2. Improper guide clearance

Correction

1. Selective lubrication, different wearstrip material, different chain material, etc. may be required. Contact Application Engineering to run chain tension calculations
2. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 15

SYMPTOM

Chain does not articulate freely

Cause

1. Pins are bent due to high load
2. Tight joints due to foreign material in hinge

Correction

1. Remove the source of the high loads. Replace the damaged links. Check chain loading
2. Clean conveyors frequently to reduce the amount of contaminants present

TROUBLESHOOTING GUIDE

SYMPTOM

Pulsation

Cause

1. Build up of foreign material on the wearstrips
2. Idler sprockets do not turn freely due to bad bearing or improper fit on bushed sprockets
3. Improper catenary
4. Inadequate guide clearance
5. Non uniform coefficient of friction
6. Debris causes “sticking” locally
7. Return rollers may be too small or spacing may be incorrect
8. Water accumulation in the return pan

Correction

1. Lift the chain from the track and clean as necessary
2. Lift the chain free of the tail sprocket and make sure that it spins freely without excessive drag. Rebore if necessary. Clean the shaft
3. Make sure the catenary stays at the head end and is appropriately sized. Refer to page 19
4. Check to be sure the chain is not being “pinched” by the side guides. Refer to page 15 for proper guide clearance
5. If the conveyor is lubricated, clean the conveyor and reapply a uniform coating of lubricant. Insure that the same wearstrip material is utilized on the same conveyor
6. Clean the wearstrips as necessary
7. Check on page 17 for proper roller diameter and proper spacing dimension
8. Insure chain does not have to “cut” though a build up of water. Vacuum breakers should be utilized in stainless steel return pans; refer to page EM-MT-32 in the Engineering Manual

SYMPTOM

Static electricity problems (nuisance static only)

Correction

1. Consult Application Engineering for recommendations

SYMPTOM

Chain moves laterally along the straight sections of the conveyor

Cause

1. Conveyor Section fit is incorrect
2. Sprockets are misaligned
3. Chain is hitting a guide rail mounted too low or inline

Correction

1. Using a flat bar, make sure the frame is parallel and wearstrips are inline
2. Insure that the sprockets are properly aligned
3. Check the clearance of the chain and guide rails. Raise guide rails where necessary

MAINTENANCE GUIDELINES

With current high speed, dry running beverage lines, it is more important than ever to set up regular inspection and maintenance schedules. Periodic inspection of the chain, sprockets, and other conveyor components and timely preventative maintenance will ensure long life and smooth performance.



To avoid personal injury, all machinery must be turned off and locked out, prior to chain installation, inspection, maintenance and removal



Always wear safety glasses

Start-Up

1. Start the conveyor and run without product for 30 minutes to 1 hour. Listen for unusual noises and look for signs of interference or unusual operations. If any problems are detected, stop conveyors and remove obstructions or make adjustments as required
2. Repeat step 1 with product
3. With conveyors running under load, check the catenary sag. Remove or add links or rows of links to obtain the proper catenary sag as shown on page 19

General Inspection and Preventative Maintenance - Bi-Monthly

1. While the conveyors are running, listen for and locate the sources of any unusual noises
2. Look for unusual or excessive wear patterns on the chain or wearstrips, such as grooves or scratches. Inspect the chain for broken links. If a “scallop” wear pattern has developed on the chain top surface see step 6 below
3. Look for unusual or excessive debris, such as wear debris, product residue, or broken conveyor debris, especially glass
4. Look for excessive gaps between flights due to a jam up or overload situation
5. Look for pulsation or “jerky” chain operation
6. If return rollers are used, check to insure they are turning freely
7. Examine sprockets for signs of excessive wear or debris build-up in tooth pockets
8. With conveyors running under load, check the catenary sag. Remove or add links or rows of links to obtain the proper catenary sag as shown on page 19



Refer to the Trouble Shooting Guide on pages 26-31 for more details on symptoms, causes and corrections. Remove or correct the cause of issues and replace worn, damaged chain and wearstrips as required. Clean conveyors according to the instructions on pages 24-25



Do not attempt to connect or disconnect chain unless chain construction is clearly known and understood



Never walk on the conveyors. If it is absolutely necessary, first cover chains and tracks with clean cardboard and then clean-up afterwards



If any flame cutting, welding, etc. is done near the conveyors, protect the chain and other components or remove them from the conveyor and store in a safe location. Plastic materials can burn and give off toxic fumes

MAINTENANCE GUIDELINES

Normal Wear and Replacement

Once a month, measure the chains for normal wear. Chains may wear due to hinge/joint wear, or flight wear from wearstrips and product accumulation. Side-flexing chains may also wear via side thrust surface wear from corners. Replace chain and other conveyor components as indicated below.

- ✓ For optimum chain and sprocket performance, it is recommended that both the chain and sprockets be replaced at the same time. The wearstrips should also be replaced if worn, damaged or embedded with debris

The chain should be replaced when:

1. The chain starts jumping the sprocket teeth
2. The chain has stretched or elongated approximately 3%
3. TableTop chains have worn to 1/2 the original link thickness
4. MatTop chain links have worn to approximately 3/4 of the original link thickness (or pin is exposed)
5. Side-flexing chain side thrust surface wears away and exposes the pins or other metal parts which may cut into the corner track or other conveyor components
6. Side-flexing chain side thrust surface has worn 1/16 in (1.6 mm)

- ✓ Replace chain, sprockets and wearstrips if worn or damaged

- ✓ Conveyor operation and packaging line controls - If machine stoppages cause conveyor to accumulate the full length, the controls should sequentially stop conveyors and then restart them after machines are clear. This minimizes product backline pressure and wear between chain and the bottom of containers



If plastic side-flexing chains exhibit signs of unusual wear (smearing or plastic flow), contact Application Engineering for assistance or refer to page 30 in the Trouble Shooting section (chain is melting on the thrust surface)



Care should be used when handling the chain to avoid crushed or pinched fingers. Use a come-along or tie off the chain to keep it under control at all times



A MatTop chain assembly tool is available from Rexnord for 4707, 5995 and 5997 chains

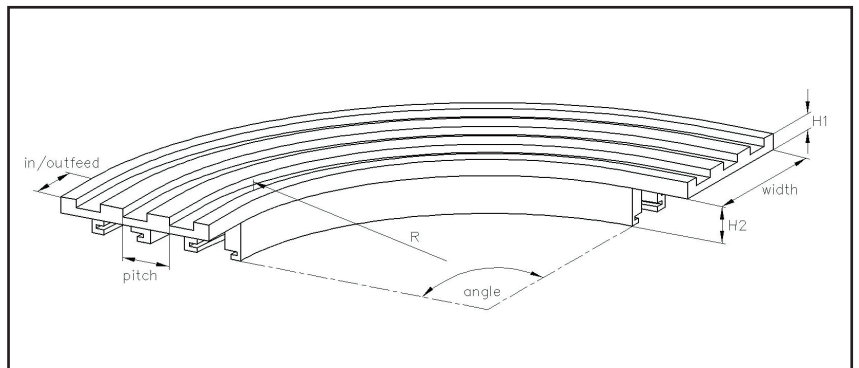
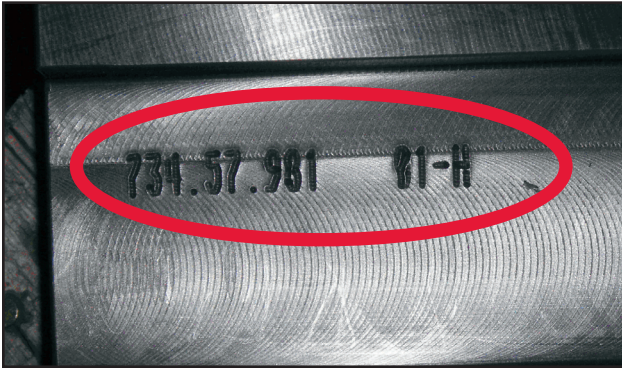


The chain can easily become twisted, causing permanent deformation. Make all chain connections on the conveyor frame

Curve Replacement

How to Identify a Curve

- Since 2000 all curves are marked with a code number which is engraved in the first track as shown below
- If no code number can be found, measure the main dimensions as indicated in the drawing below or on page X. These dimensions along with the chain utilized and corner track material (or color) will enable Rexnord to identify the curve
- The code number enables Rexnord to identify the complete curve set (upper and return)
 - In some situations the curves are sold individually rather than in sets. In this case the part number or code number would only help to identify the individual part. For these situations we would need to know the chain series utilized to help identify the dimensions of the complete set



- ✓ In the event the curve is worn down and it needs to be replaced, it is recommended to replace the set (upper and return) to provide optimum life

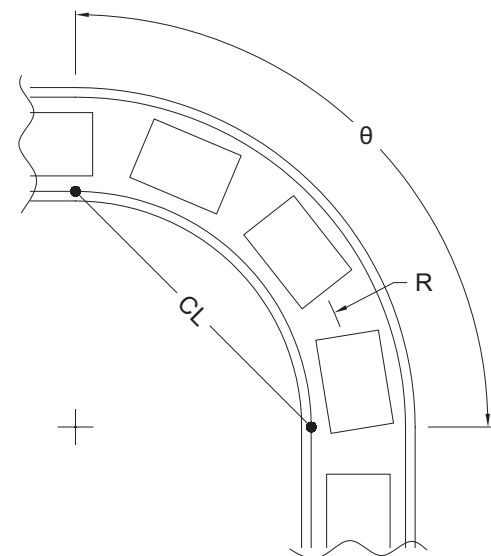
How to Measure a Curve

Measure the straight line (or chord length, CL) distance from the tangent points at each end of the curve. It is important to measure on the inner frame rail edge closest to the rollers; this is designated by the black dots on the diagram.

How to Mount a Curve

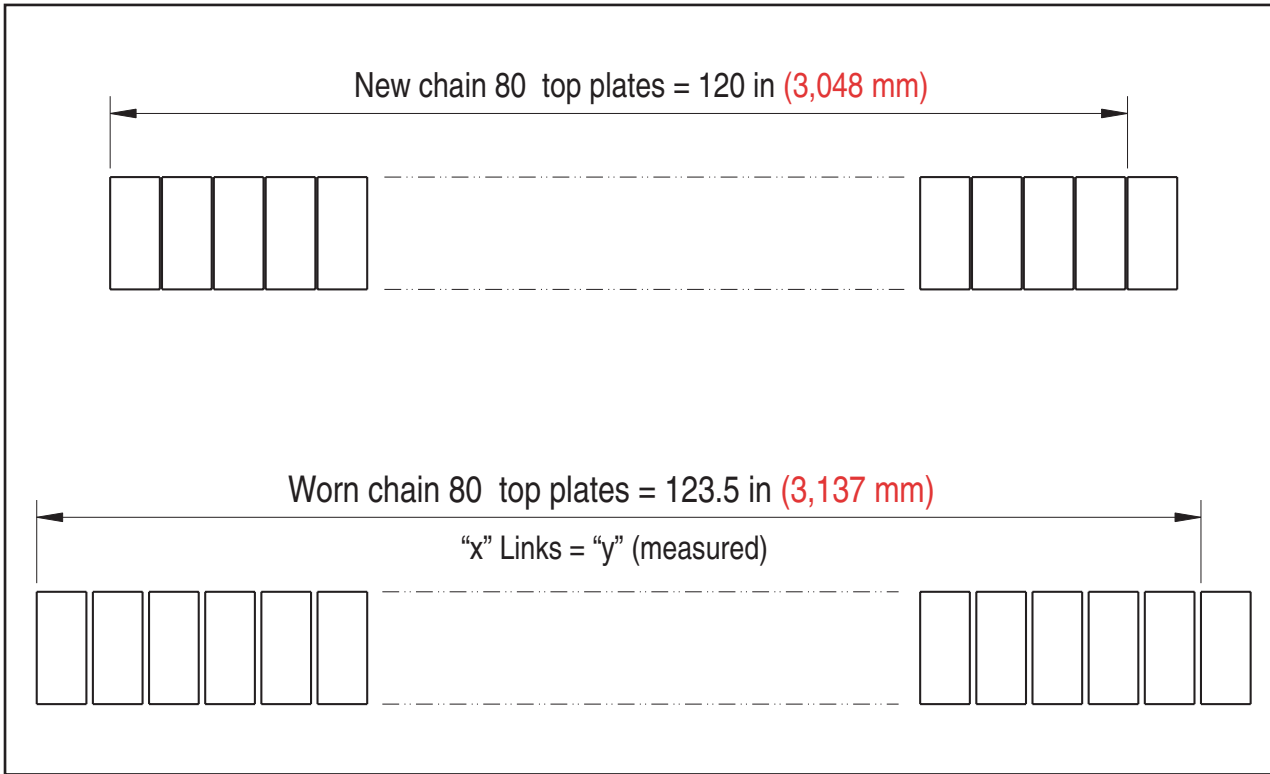
- Refer to pages 22-23 for information regarding the mounting and installation of curves

- ✓ The life of the magnets equals the life of the curve. Although the life of the magnets is virtually unlimited, Rexnord always manufactures new curves with new magnets



Chain Replacement

For optimum chain and sprocket performance, it is recommended that both the chain and sprockets be replaced at the same time. Wearstrips and corner tracks should also be replaced if worn, damaged or embedded with debris. Chain replacement guidelines can be found on page 33 (The chain should be replaced when). To measure elongation follow the chart and drawing below. It is recommended to replace chain when it has reached 3% elongation.



Elongation Due to Hinge / Joint Wear

Replacement Guideline:

Replace chain when “X” number of links measures “Y” or larger

Chain Pitch	Rexnord Chain Series	“X” Number of Links	“Y” Maximum Allowable Chain Elongation
1.00 in (25.4 mm)	1050, 1055 & 1060	120 pitches or links	123.5 in (3,137 mm)
1.50 in (25.4 mm)	10 M, 45 M, 60 M, RHM, RHMD, HDFM	80 pitches or links	123.5 in (3,137 mm)

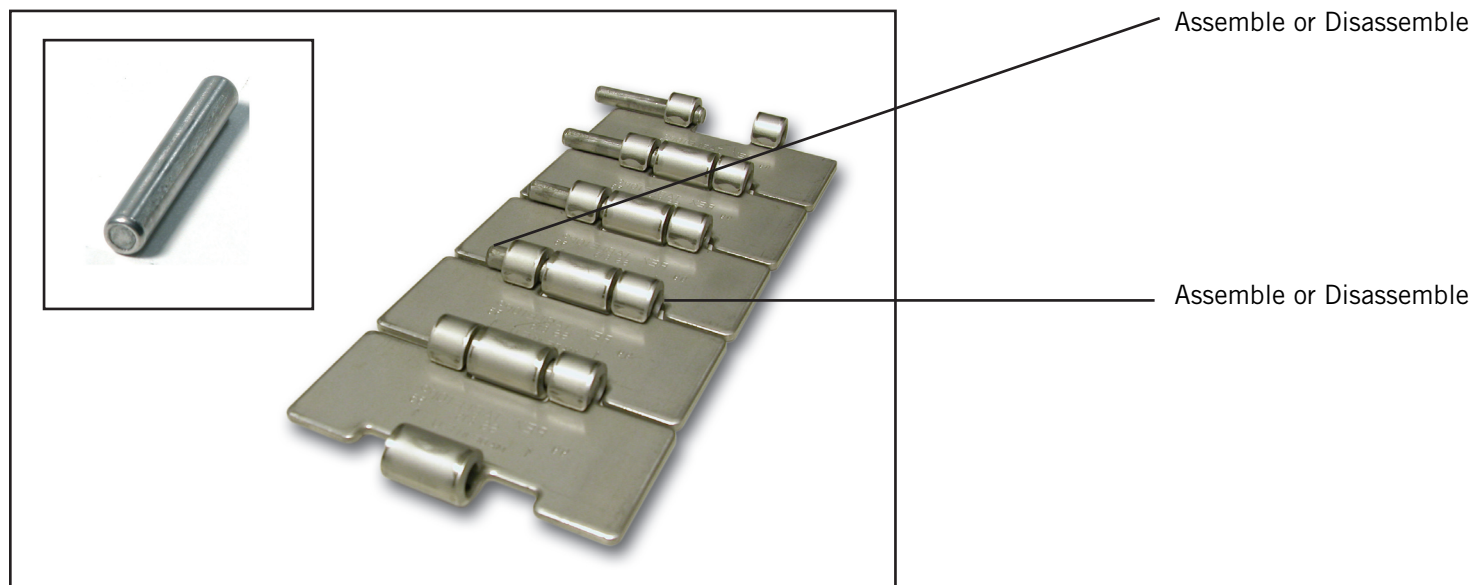
CHAIN REPLACEMENT

Chains with Round Style Pins

- Connect the chain / One Piece Chains with Round Pins

Tools required: drift pin and hammer

- ✓ To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into either one of the double eyes in the appropriate end link. Position the single eye of the other end link between the double eyes. Then drive pin through the single eye and into the adjacent double eye, using a drift punch and hammer, until connecting pin is centered in the link.



Connecting One-Piece Chains with Round Pins

- ⚠ CAUTION The chain should be hand tight when installed. Chain should never be over tensioned.

- ✓ When installing the last section, separate the chain to required length using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.

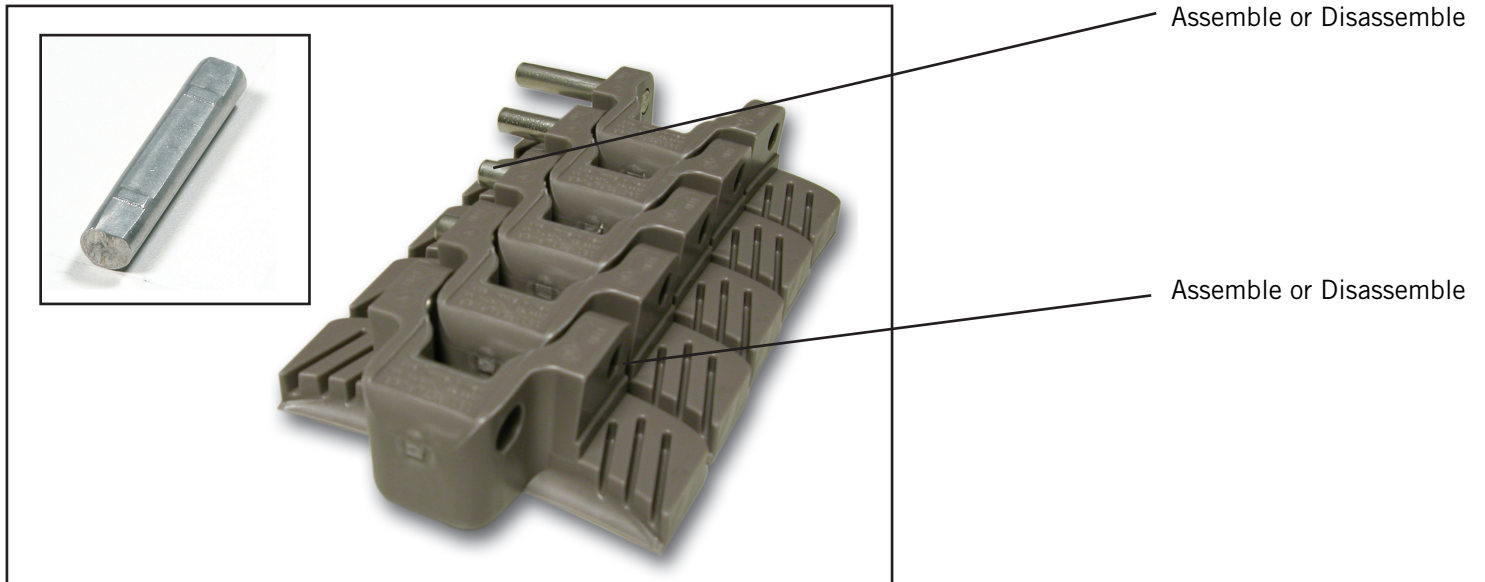
CHAIN REPLACEMENT

Chains with D Style Pins

- Connect the chain / One Piece Chains with D Style Pins

Tools required: drift pin and hammer

- ✓ To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into either one of the double eyes in the appropriate end link. Position the single eye of the other end link between the double eyes. Then drive pin through the single eye and into the adjacent double eye, using a drift punch and hammer, until connecting pin is centered in the link.



Connecting One-Piece Chains with D Pins



The chain should be hand tight when installed. Chain should never be over tensioned.



When installing the last section, separate the chain to required length using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.

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