NORTH AMERICA, INC.

a member of the mk Technology Group

Technical Documentation

KMF-P 2040
CURVED PLASTIC MODULAR BELT CONVEYOR

Each serial number is unique to that specific unit and provides mk North America with complete order details.

The serial number is located on the frame of the conveyor. See section 2 for more details.

Technical Documentation
KMF-P 2040

1 GENERAL INFORMATION

1.1 Foreword

Congratulations on purchasing a conveyor from mk North America, Inc., a leading manufacturer of quality low profile conveyors. Our more than 30 years experience in material handling allows us to offer robust solutions with long life and reliable operation. We strive to make the best products in the industry even better and we are committed to making sure our customers get top notch support before, during, and after each and every sale.

1.2 The importance of reading your manual

Inside this manual you will find the instructions on how to set up and maintain your mk conveyor properly, as well as maximize its performance. Please take the time to read this manual and familiarize yourself with these set up and maintenance instructions. These instructions will help assure a long product life that requires a minimum amount of service and keeps your conveyor working at its maximum capacity.

1.3 If you need assistance

If you need assistance there are a variety of ways to get it. You can contact our customer service team Monday through Friday, 8am-5pm (Eastern Time) at (860) 769-5500. You can also visit our website for additional information and technical documentation at www.mknorthamerica.com. In addition, your local representative can provide support in many instances.

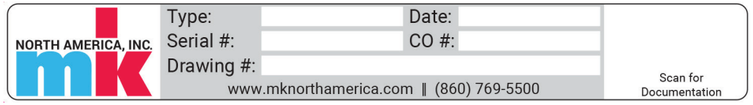
1.4 When your shipment arrives

1) Check your shipment
   a) If you have not already done so, visually inspect the shipping crate/container for any damage caused during shipment.
   b) Carefully unpack the crate/container making sure to inspect the components for damage that may have occurred inside the packaging materials.
   c) If you find any damage, please contact the carrier and mk North America, Inc.
   d) Lastly, check the contents against the packing slip provided by mk for any discrepancies. If you should find any, please contact mk North America, Inc.

2) Locate your ordered items
   a) Each mk conveyor will ship in its own custom built container, carefully packaged in the most economical way.
   b) Review the packing slip against your Purchase Order.

2 SERIAL NUMBER LABEL

• The conveyor's serial number is located on the frame at the drive end of the conveyor.



Type:
This description refers to the type of unit that is associated with the particular serial number. The type should NOT be substituted for the serial number when inquiring.

Serial #:
This number is unique to this item. With this number we can access all of the original order details.

Drawing #:
This number, if applicable, refers to the specific drawing that was created for this unit.

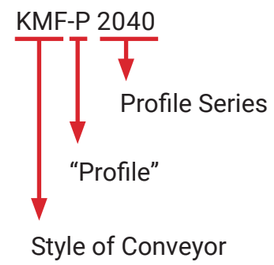
Date:
This is the date that the unit was scheduled to ship.

CO#:
This is the customer order number in which this unit was built. This is an mk North America, Inc. internal number. This number is also referenced on any related invoices, etc.

Scan for Documentation:
Scanning this QR code will bring you to a webpage specific for the conveyor on this order. From here you can access drawings and spare parts.

3 CONVEYOR DESCRIPTION

3.1 Explaining the conveyor **TYPE**.



Style of Conveyor

DGF (Doppel-Gurt Foerderer) Dual-Belt Conveyor

GUF (Gurt Foerderer) Belt Conveyor

KFG (Knickfoerderer Gurt) Bent "Gooseneck" Belt Conveyor

KFM (Knickförder Modular) Bent "Gooseneck" Plastic Modular Belt Conveyor

KGF (Kurvengurt Foerderer) Curve Belt Conveyor

KMF (Kurvengängiges Modulband) Curved Modular Belt Conveyor

KTF (Kettengurt Foerderer) Chain Conveyor

MBF (Modulband Foerderer) Modular Belt Conveyor

RBM (Rollenbahn Motor) Motorized Roller Conveyor

RBS (Rollerbahn Schwerkraft) Idler Roller Conveyor

RBT (Rollenbahn Tangentialkette) Drive Roller Conveyor

SBF (Scharnierband Foerderer) Hinged Belt Conveyor

SPU (Staufaehiges Pallettenumlaufystem) Continuous Motion Pallet Conveyor

SRF (Staurollen Foerderer) Accumulating Roller Conveyor

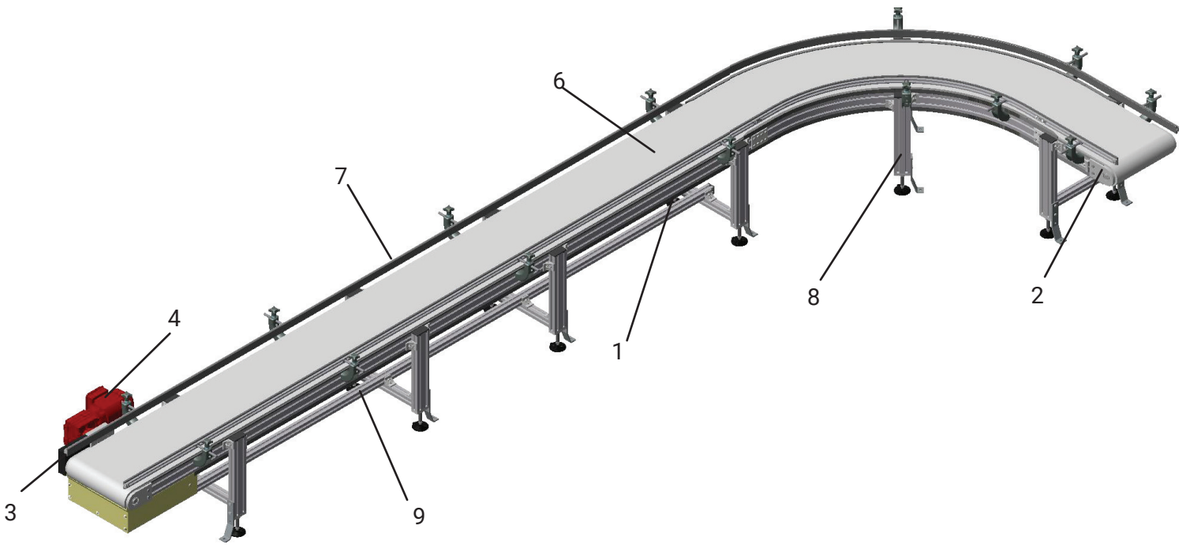
TKU (Taktkettenförderer) Timing Chain Conveyor

ZRF (Zahnriemen Förderer) Timing Belt Conveyor

3 CONVEYOR DESCRIPTION (CONT.)

3.2 Conveyor Components

The KMF-P 2040 has many typical conveyor components. Below is a description of the basic parts and options for the KMF-P 2040 conveyor. The items you receive will vary based on your actual purchase order. Items may appear different on your model based on your particular order requirements. Consult your approval drawing for specifics items included in your order.



Your model will vary.

Typical Components

1) Conveyor Frame
2) Idler End
3) Gearmotor Mount/Drive Assembly
4) Gearmotor
5) Speed Control (not shown)
6) Belt
7) Side Rails
8) Support Stand
9) Stand Stringer

4 WARRANTY INFORMATION

Warranty

mk North America, Inc. (MKNA) offers a COMPLETE ONE YEAR WARRANTY from the date of delivery, to the original purchaser of the MKNA equipment (CUSTOMER), to be free from defects in material and workmanship; under normal use and with proper installation, maintenance and cleaning.

Additionally MKNA offers a LIMITED 10 YEAR WARRANTY on all equipment that MKNA is the original manufacturer of, to be free from defect and workmanship.[1.]

This warranty is extended by MKNA only to CUSTOMER, and is non-transferable. All warranty requests shall be made by CUSTOMER.

MKNA will replace or repair, at our factory or any other location we designate[2.], any defective part within the warranty period and without charge. It is at MKNA's sole discretion whether to repair or replace. CUSTOMER will provide MKNA with a prompt written notice of the defect, including the serial number of the unit (when applicable) and the date of delivery.

At MKNA's request CUSTOMER will return all defective parts for evaluation at MKNA. MKNA will provide CUSTOMER with a return goods authorization number (RGA#). No parts will be returned without a RGA#. The RGA# must clearly be marked on all labels, packages and packing slips.

CUSTOMER shall pay all costs for packaging, shipping, duties and/or any other related costs in the sending or receiving of parts. CUSTOMER is responsible for all labor associated with sending or receiving of parts.

MKNA PROVIDES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; UNLESS IT IS AGREED TO BY MKNA AND CUSTOMER IN WRITING PRIOR TO PLACEMENT OF ORDER. Such agreement requires approval of MKNA Management.

UNDER NO CIRCUMSTANCES SHALL MKNA BE HELD LIABLE FOR DAMAGES OR LIABILITY FOR LOSS OF PRODUCTION, PRODUCT, EQUIPMENT OR PROFITS OR LIABILITY FOR DIRECT, INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES TO PERSONS OR PROPERTY, WHATSOEVER. CUSTOMER agrees that it is their sole remedy for liability of any kind, including negligence with respect to the equipment and services furnished by MKNA shall be limited to the remedies provided herein. This warranty shall not apply to any failure of the unit or its components caused by lack of maintenance and/or improper maintenance, incorrect adjustments, misuse or unreasonable use or exposure to chemicals and/or environments which the unit is not designed for. Unauthorized modification of the unit or the use of non-MKNA replacement parts and building components voids this warranty.

[1.] The limited 10 year warranty does not apply to equipment and components manufactured by others. Such equipment and components are subject to any limitation contained in the original manufacturer's warranty and include, but are not limited to: bearings, belts, casters, controllers, motors and pneumatic devices.

[2.] No work will be performed by MKNA or an MKNA factory authorized service representative at the site of installation unless in MKNA's opinion it is impractical for Customer to remove and return the defective part to MKNA's factory.

EXCEPT AS EXPRESSLY STATED HEREIN, THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF THE EQUIPMENT OR SERVICES FURNISHED BY MKNA OR FACTORY AUTHORIZED SERVICE REPRESENTATIVE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

mk North America, Inc. reserves the right to change, modify or discontinue products and/or specifications with or without notice.

All of mk North America, Inc. products are covered by this warranty.

5 SAFETY REQUIREMENTS

5.1 Warnings - Safety Guidelines

READ AND UNDERSTAND ALL OF THESE WARNINGS PRIOR TO OPERATING EQUIPMENT.

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS

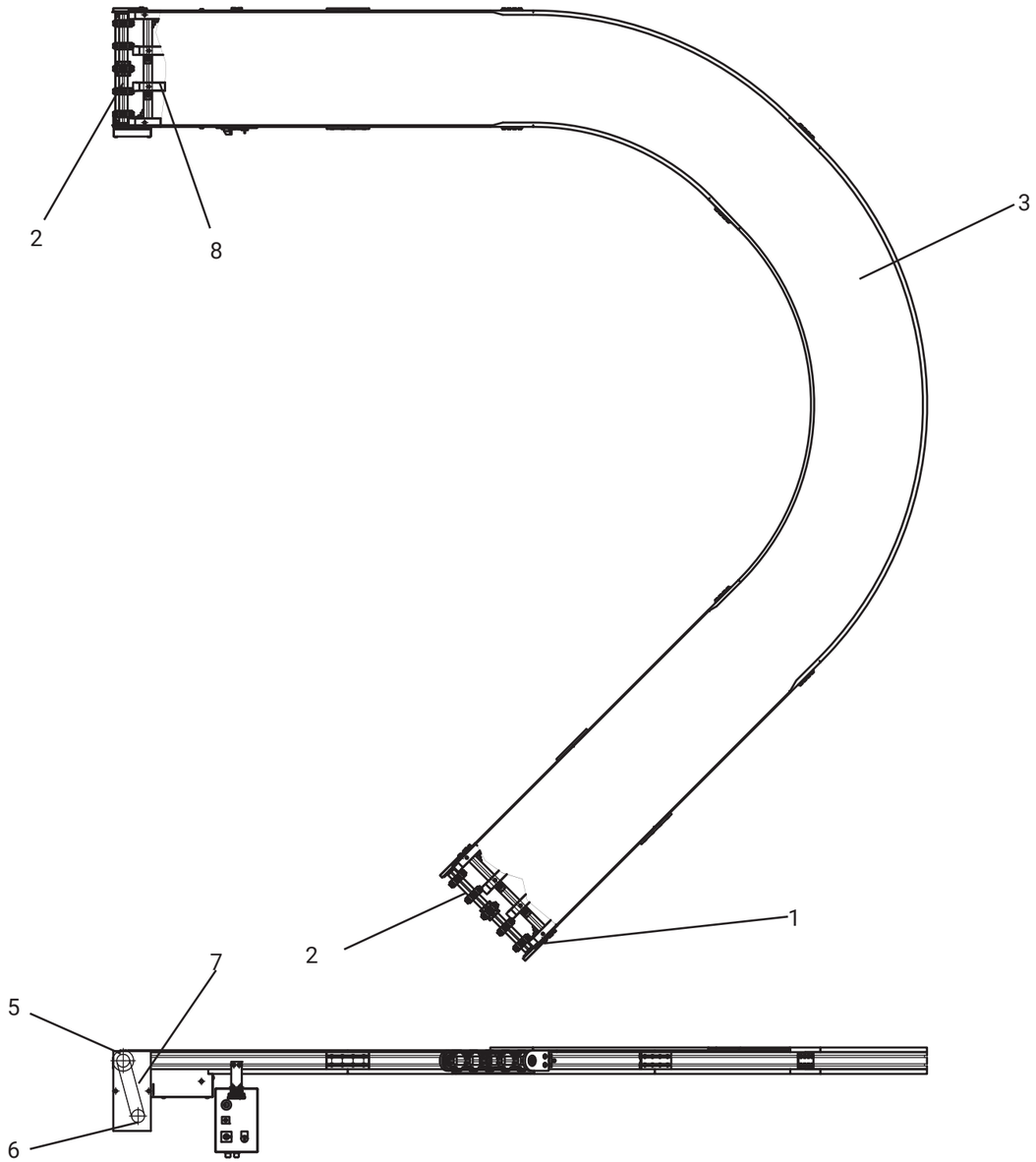
6.1 Important Notes About Wear Items & Maintenance

The following information regarding life of the wear items and service or adjustment intervals of the functional elements are only GUIDELINES. Conveyors are application-specific products whose life expectancy can vary depending on their relative loads and speeds, and which can be significantly influenced by environmental factors.

- All moving components and screw connections should be checked every 6 months.
- All safety-relevant components should be part of a regularly scheduled weekly inspection
- The proper function of these components must be confirmed at all times.
- Do NOT operate conveyors if safety-relevant components are damaged or missing.
- All parts which contact the product should be cleaned weekly (example: belt).
- Belts require little special care.
- Remove heavy grease coatings with ethyl alcohol.
- Blow off debris from belts with structured surfaces or open mesh using compressed air.

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.2 KMF-P 2040 AC



NOTE: Not all items shown in all views for clarity.

(Cont.)

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.2 KMF-P 2040 AC (Cont.)

Maintenance Work for KMF-P 2040 AC

Position	Description	Action*	Interval in Hours (Months)	Lubricant
1	Roller Bearing	I	1,000 Hours (Max. 6 Months)	
2**	Drive/Idler Sprocket	I, C	500 Hours (Max. 3 Months)	
3	Plastic Modular Belt	I, C	500 Hours (Max. 3 Months)	
		R	If wear visible	
4 (not shown)	Gearmotor	I	Service & maintenance per manufacturer's documentation	
5, 6	Sprockets	I, C	500 Hours (Max. 3 Months)	
7	Roller Chain and Connecting Link	I, C, T, L	500 Hours (Max. 3 Months)	SAE20 - SAE50
		R	If max. stretch is 3% or greater	
8	Wear Strip	I, C	1,000 Hours (Max. 6 Months)	
		R	If thickness is less than 3 mm	

** LEGEND: **I**nspect, **R**eplace, **T**ension, **C**lean, **L**ubricate (grease).*

*** Number of sprockets is dependent upon conveyor belt width.*

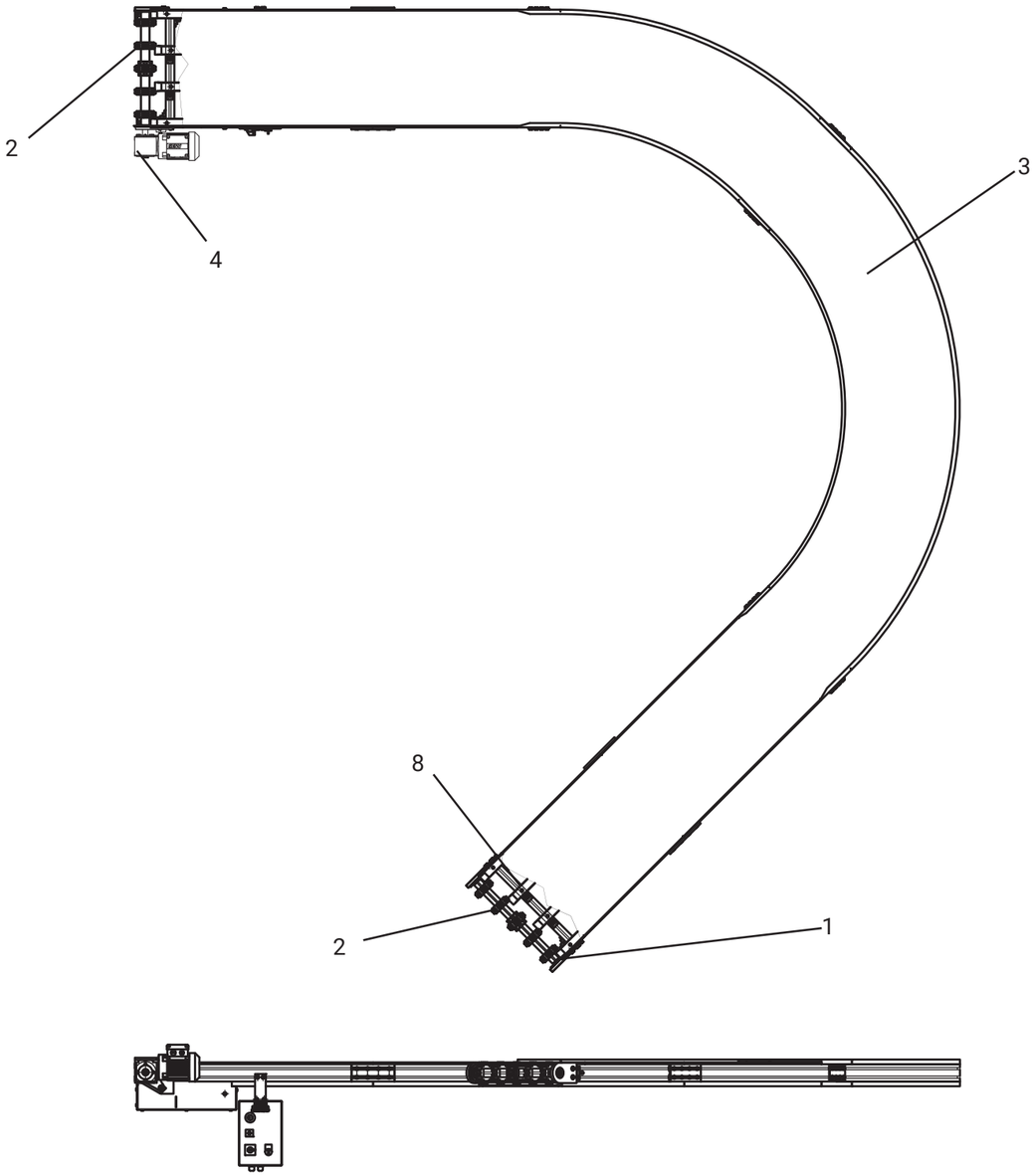
Wear Items for KMF-P 2040 AC

Position	Description	Part Number
1	Roller Bearing 2205-2RS1	K10101316
2	Drive/Idler Sprocket	Inquire with mk North America
3	Belt	Inquire with mk North America
4	Gearmotor	Inquire with mk North America
5	Sprocket at Drive Roll	Inquire with mk North America
6	Sprocket Gearmotor	Inquire with mk North America
7	Roller Chain and Connecting Link	Inquire with mk North America
8	Wear Strip	Inquire with mk North America

NOTE: For adjusting the belt tensioning, please see the related section for details. When cleaning the belt, avoid any harsh chemicals or detergents.

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.3 KMF-P 2040 AF



NOTE: Not all items shown in all views for clarity.

(Cont.)

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.3 KMF-P 2040 AF (Cont.)

Maintenance Work for KMF-P 2040 AF

Position	Description	Action*	Interval in Hours (Months)	Lubricant
1	Roller Bearing	I	1,000 Hours (Max. 6 Months)	
2**	Drive/Idler Sprocket	I, C	500 Hours (Max. 3 Months)	
3	Plastic Modular Belt	I, C	500 Hours (Max. 3 Months)	
		R	If wear visible	
4	Gearmotor	I	Service & maintenance per manufacturer's documentation	
8	Wear Strip	I, C	1,000 Hours (Max. 6 Months)	
		R	If thickness is less than 3 mm	

** LEGEND: **I**nspect, **R**eplace, **T**ension, **C**lean, **L**ubricate (grease).*

*** Number of sprockets is dependent upon conveyor belt width.*

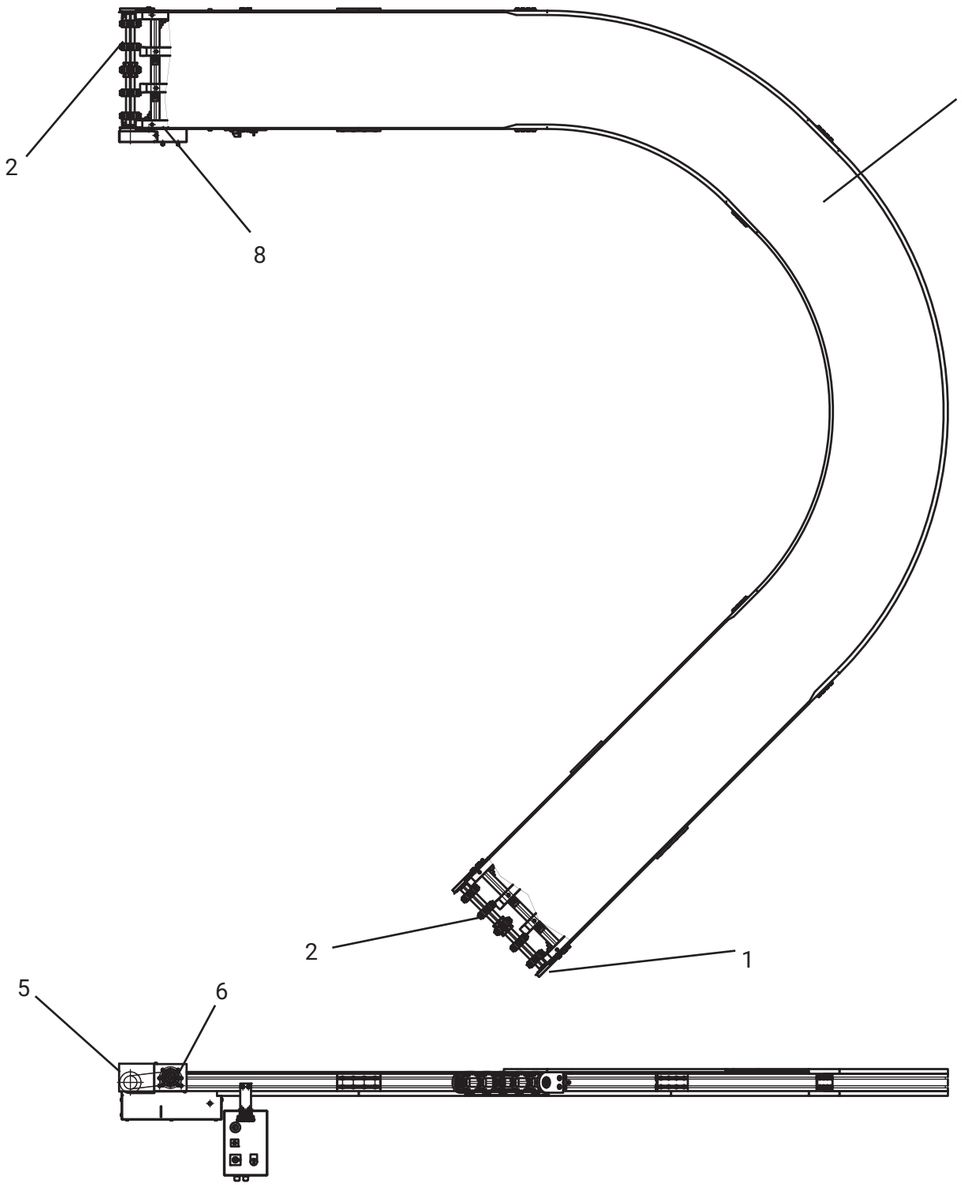
Wear Items for KMF-P 2040 AF

Position	Description	Part Number
1	Roller Bearing 2205-2RS1	K10101316
2	Drive/Idler Sprocket	Inquire with mk North America
3	Belt	Inquire with mk North America
4	Gearmotor	Inquire with mk North America
8	Wear Strip	Inquire with mk North America

NOTE: For adjusting the belt tensioning, please see the related section for details. When cleaning the belt, avoid any harsh chemicals or detergents.

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.3 KMF-P 2040 AS



NOTE: Not all items shown in all views for clarity.

(Cont.)

6 WEAR ITEMS & MAINTENANCE FOR SPECIFIC DRIVE & TAIL OPTIONS (CONT.)

6.3 KMF-P 2040 AS (Cont.)

Maintenance Work for MBF-P 2040.02 AS

Position	Description	Action*	Interval in Hours (Months)	Lubricant
1	Roller Bearing	I	1,000 Hours (Max. 6 Months)	
2**	Drive/Idler Sprocket	I, C	500 Hours (Max. 3 Months)	
3	Plastic Modular Belt	I, C	500 Hours (Max. 3 Months)	
		R	If wear visible	
4 (not shown)	Gearmotor	I	Service & maintenance per manufacturer's documentation	
5, 6	Sprockets	I, C	500 Hours (Max. 3 Months)	
7 (not shown)	Roller Chain and Connecting Link	I, C, T, L	500 Hours (Max. 3 Months)	SAE20 - SAE50
		R	If max. stretch is 3% or greater	
8	Wear Strip	I, C	1,000 Hours (Max. 6 Months)	
		R	If thickness is less than 3 mm	

** LEGEND: **I**nspect, **R**eplace, **T**ension, **C**lean, **L**ubricate (grease).*

*** Number of sprockets is dependent upon conveyor belt width.*

Wear Items for MBF-P 2040.02 AS

Position	Description	Part Number
1	Roller Bearing 2205-2RS1	K10101316
2	Drive/Idler Sprocket	Inquire with mk North America
3	Belt	Inquire with mk North America
4	Gearmotor	Inquire with mk North America
5	Sprocket at Drive Roll	Inquire with mk North America
6	Sprocket Gearmotor	Inquire with mk North America
7	Roller Chain and Connecting Link	Inquire with mk North America
8	Wear Strip	Inquire with mk North America

NOTE: For adjusting the belt tensioning, please see the related section for details. When cleaning the belt, avoid any harsh chemicals or detergents.

7 CONVEYOR BELT MAINTENANCE - TENSIONING

All work to be performed by qualified personnel only.
Conveyor power must be disconnected before performing maintenance.

General Remarks:

- Prior to delivery of the mk conveyor, the chain was tensioned and tracked at the factory.
- Alternate tightening set screws AND loosen the other side as applicable in order to avoid over tensioning the belt.

7.1 Checking Belt Sag and Tension

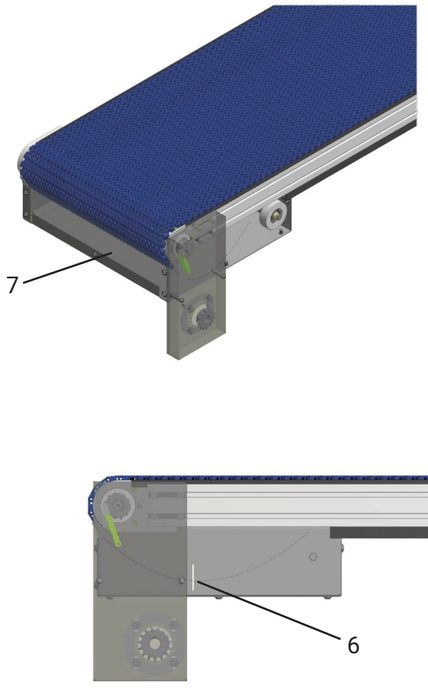
Check Belt Sag and Tension Before Proceeding.

The chain requires a catenary sag; this can be found at the drive end of the conveyor.

Attention!
The plastic modular belt must not touch the protective cover (7). View the catenary sag of the belt; when the conveyor is fully loaded, using the slot (6), which is located in the protective cover (7).

When the plastic modular belt; under full load conditions, is seen in the lower region of the slot (6) proceed with belt tensioning.

If maximum tension on the system has occurred then proceed to belt link removal OR with belt stretch is over 3% replace the belt.



7 CONVEYOR BELT MAINTENANCE - TENSIONING (CONT.)

7.2 Tensioning

Always tension at the idler end of the conveyor.

It is not necessary to remove the belt from the idler sprockets to tension

Always tension on both sides of the conveyor frame.

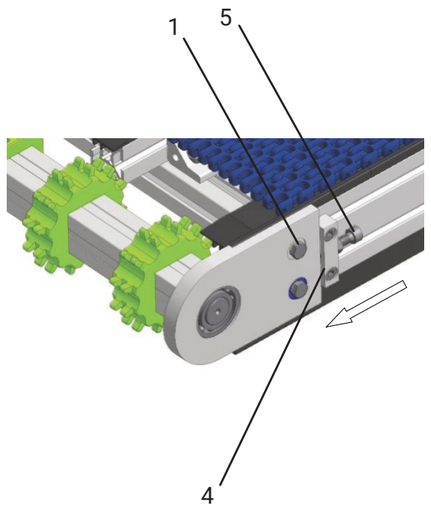
Do not allow the idler shaft to get too far out of parallel when compared to the drive shaft.

Loosen screw (1)

Turn screw (5) to tension the plastic modular belt

Tighten screw (1)

Adjust alignment block (4) and repeat steps 1 – 3 as needed.



7 CONVEYOR BELT MAINTENANCE - TENSIONING (CONT.)

7.3 Removing Links

Always remove links at the idler end of the conveyor.

If maximum chain tension is reached remove three (3) rows of links from the plastic modular belt.

Loosen screw (1).

Loosen screw (5) until the alignment block (4) fully rests on the roll holder (2).

Loosen both screws (3).

Move the roll holder (2) and alignment block (4) to the center position (in the direction of the arrow).

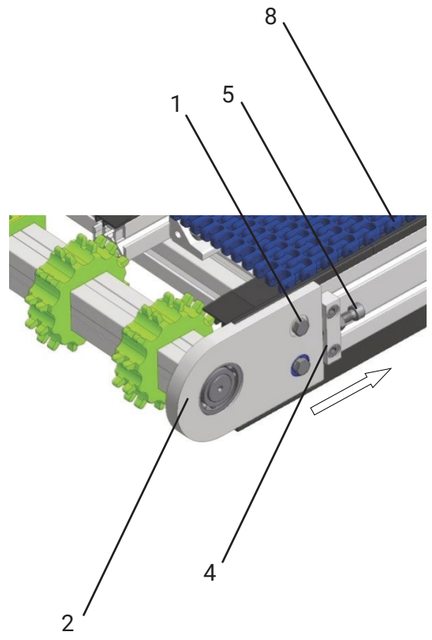
Tighten all screws (1) and (3).

Refer to the belt manufacturer‘s instructions for removing links from belt (8). Remove three links.

Refer to belt manufacturer’s instructions to join open ends of belt together.

Reassemble in reverse order.

Tension belt, as outlined in Section 7.2, prior to operating conveyor.



8 CONVEYOR MAINTENANCE - BELT REPLACEMENT

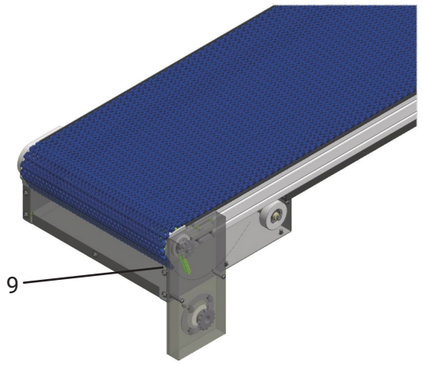
All work to be performed by qualified personnel only.

Conveyor power must be disconnected before performing maintenance.

General Remarks:

- Prior to replacing the belt, the tail assembly must be completely loosened and retracted - instructions for this are below.
- Reassemble in reverse order.
- Replace all guards before operating conveyor.
- Replacement belts must be tracked and tensioned prior to use. (see Section 7.2)

8 CONVEYOR MAINTENANCE - BELT REPLACEMENT (CONT.)

Loosen screws (9) and remove the front of the belt guard. Refer to the belt manufacturer's instructions and locate the connecting pin for the chain. Remove the belt. Thread the new chain through the conveyor system and connect ends with connecting rod, per the belt manufacturer's instructions. Reinstall belt guard, tightening screws (9). Tension belt, as outlined in Section 7.2, prior to operating conveyor.	

9 CONVEYOR MAINTENANCE - TENSIONING & GREASING OF DRIVE CHAIN

All work to be performed by qualified personnel only.
Conveyor power must be disconnected before performing maintenance.

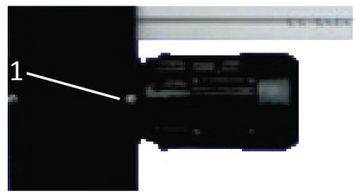
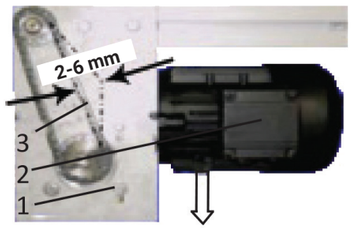
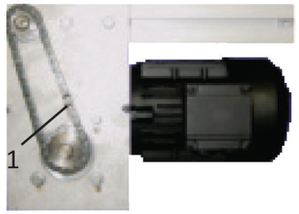
9 CONVEYOR MAINTENANCE - TENSIONING & GREASING OF DRIVE CHAIN (CONT.)

All work to be performed by qualified personnel only.
Conveyor power must be disconnected before performing maintenance.

THIS SECTION DOES NOT APPLY TO THE DRIVE VERSION AA OR AF.
Do NOT lubricate timing belt and pulley drive trains.

9 CONVEYOR MAINTENANCE - TENSIONING & GREASING OF DRIVE CHAIN (CONT.)

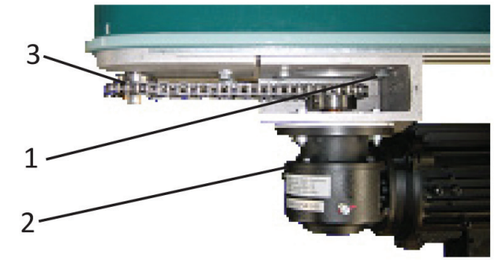
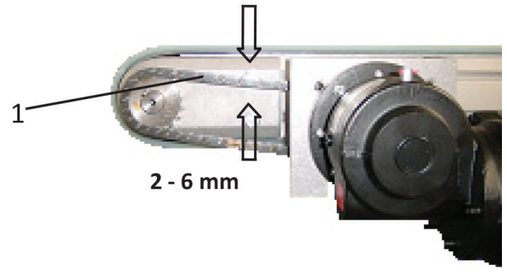
9.1 Tensioning & Greasing of the Drive Chain - KMF-P 2040 AC

Remove cap nuts (1) and remove the chain guard.	
Loosen the mounting screws (1) of the motor (2). Lower the motor, thereby adding tension to the drive chain (3). Do not over-tension the drive chain. Proper tension should allow 2-6 mm of chain movement on one side.	
<u>Greasing the Drive Train</u> The drive chain (1) must be lubricated with grease in accordance with the maintenance instructions (see Section 6). Apply the lubricant with a brush to the chain edges, in order for the lubricant to penetrate the links completely.	

***Reassemble in reverse order; ensuring all screws are tight and all guards are in place before operating.**

9 CONVEYOR MAINTENANCE - TENSIONING & GREASING OF DRIVE CHAIN (CONT.)

9.2 Tensioning & Greasing of the Drive Chain - KMF-P 2040 AS

Loosen bolt (1) at the upper and lower surface and remove the protective cover.	
Loosen fastening screws (1) of the gearmotor (2). Tighten the drive chain (3) by pushing the gearmotor downwards. Do not over-tension the drive chain. Proper tension should allow 2-6 mm of chain movement on one side. (See below.)	
<u>Greasing the Drive Train</u> The drive chain (1) must be lubricated with grease in accordance with the maintenance instructions (see Section 6). Apply the lubricant with a brush to the chain edges, in order for the lubricant to penetrate the links completely.	

***Reassemble in reverse order; ensuring all screws are tight and all guards are in place before operating.**

10 CONTACT INFORMATION

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service@mknorthamerica.com

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Technical Documentation
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Curve Plastic Modular Belt Conveyor

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