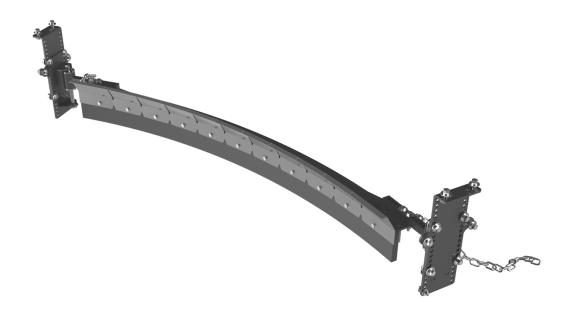
MXDP Diagonal Plow

Installation, Operation and Maintenance Manual





MXDP Diagonal Plow

Serial Number:
Purchase Date:
Purchased From:
Installation Date:

Serial number information can be found on the Serial Number Label included in the Information Packet found in the cleaner carton.

This information will be helpful for any future inquiries or questions about belt cleaner replacement parts, specifications or troubleshooting.

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Section 1 - Important Information

1.1 General Introduction

We at Flexco are very pleased that you have selected the MXDP Diagonal Plow for your conveyor system.

This manual will help you to understand the operation of this product and assist you in making it work up to its maximum efficiency over its lifetime of service.

It is essential for safe and efficient operation that the information and guidelines presented be properly understood and implemented. This manual will provide safety precautions, installation instructions, maintenance procedures and troubleshooting tips.

If, however, you have any questions or problems that are not covered, please visit our web site or contact our Customer Service Department:

Visit www.flexco.com for other Flexco locations and products.

Please read this manual thoroughly and pass it on to any others who will be directly responsible for installation, operation and maintenance of this cleaner. While we have tried to make the installation and service tasks as easy and simple as possible, it does however require correct installation and regular inspections and adjustments to maintain top working condition.

1.2 User Benefits

Correct installation and regular maintenance will provide the following benefits for your operation:

- Reduced conveyor downtime
- Reduced man-hour labor
- Lower maintenance budget costs
- Increased service life for the plow and other conveyor components

1.3 Service Option

The MXDP Diagonal Plow is designed to be easily installed and serviced by your on-site personnel. However, if you would prefer complete turn-key factory service, please contact your local Flexco Field Engineer or your Flexco Distributor.

Section 2 - Safety Considerations and Precautions

Before installing and operating the MXDP Diagonal Plow, it is important to review and understand the following safety information.

There are set-up, maintenance and operational activities involving both stationary and operating conveyors. Each case has a safety protocol.

2.1 Stationary Conveyors

The following activities are performed on stationary conveyors:

- Installation
- Blade replacement
- Repairs

- Tension adjustments
- Cleaning

A DANGER

It is imperative that OSHA/MSHA Lockout/Tagout (LOTO) regulations, 29 CFR 1910.147, be followed before undertaking the preceding activities. Failure to use LOTO exposes workers to uncontrolled behavior of the plow caused by movement of the conveyor belt. Severe injury or death can result.

Before working:

- Lockout/Tagout the conveyor power source.
- Disengage any takeups.
- Clear the conveyor belt or clamp securely in place.

A WARNING

Use Personal Protective Equipment (PPE):

- Safety eyewear
- Hardhats
- Safety footwear

Close quarters, springs and heavy components create a worksite that compromises a worker's eyes, feet and skull.

PPE must be worn to control the foreseeable hazards associated with the plows. Serious injuries can be avoided.

2.2 Operating Conveyors

There are two routine tasks that must be performed while the conveyor is running:

- Inspection of the cleaning performance
- Dynamic troubleshooting

A DANGER

Every plow is an in-running nip hazard. Never touch or prod an operating plow. Plow hazards cause instantaneous amputation and entrapment.

A WARNING

Plows can become projectile hazards. Stay as far from the plow as practical and use safety eyewear and headgear. Missiles can inflict serious injury.

A WARNING

Never adjust anything on an operating plow. Unforseeable belt projections and tears can catch on plows and cause violent movements of the plow structure. Flailing hardware can cause serious injury or death.



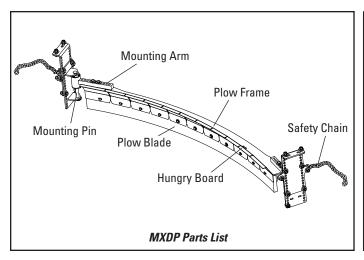
Section 3 - Pre-installation Checks and Options

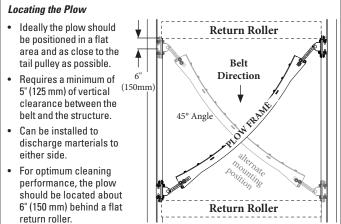
3.1 Checklist

- Check that the plow size is correct for the beltline width
- Check the product carton and make sure all the parts are included
- Review the "Tools Needed" list on the top of the installation instructions
- Check the conveyor site:
 - Are there obstructions that may require plow location adjustments?
 - Ensure proper clearance is available between topside and return side belts. (9" (229mm) for standard; 11" (279mm) for hungry board)

Section 4 - Installation Instructions

4.1 MXDP Diagonal Plow

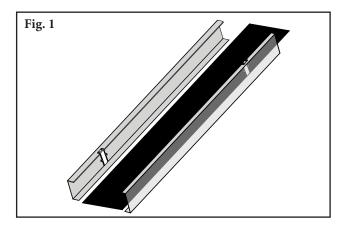




PHYSICALLY LOCK OUT AND TAG THE CONVEYOR AT THE POWER SOURCE BEFORE YOU BEGIN PLOW INSTALLATION.

Tools Needed:

- 3/4" (19mm) Wrench
- 15/16" (24mm) Wrench
- Adjustable wrench
- Tape measure
- Ratchet straps or lifting equipment
- Drill or torch (for moutning holes)
- Bolt cutter or torch (for cutting safety chain)



1. Position the plow and frame on the conveyor.

Slide the plow onto the belt in the selected location.

Check for structure interference at both ends where the mounting brackets will be attached to the structure.

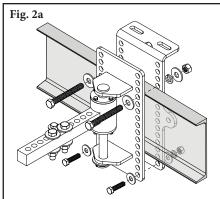
NOTE: The plow frame should generally be installed at a 45-degree angle; this may vary on structure width. Both ends of the blade must be positioned past the belt's edges.

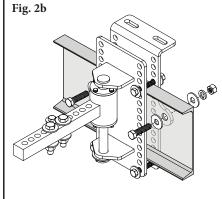
Section 4 – Installation Instructions

4.1 MXDP Diagonal Plow

2. Attach mounting drop bracket to the structure. Drill, torch, or use existing holes in the conveyor framework to mount the drop bracket. Bracket may be mounted on top or the bottom of the channel, depending on accessibility and dropheight need (Fig. 1).

NOTE: Extra long bolts are provided in the situation where clamping the drop bracket and mounting pin around the channel or structure is preferred (Fig. 2a & 2b).



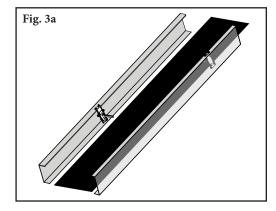


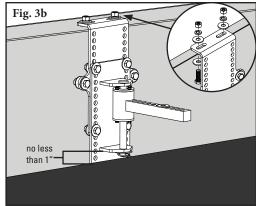
3. Attach the mounting pin/arm to the mounting drop bracket.

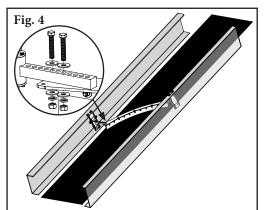
Using the belt line as reference, locate the mounting bracket such that the lower flange is no less than 1" (25mm) above the belt. Installing at this height ensures the plow can slide down the pin as the blade wears then bottom out on on the lower flange before the plow frame comes into contact with the belt (Fig. 3a & 3b).

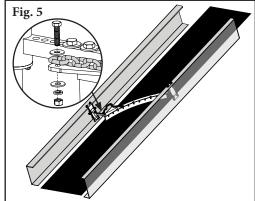
- 4. Attach the plow frame/blade to the mounting arm. Using the multiple hole options, mount the arm to the frame. Check to ensure that the blade covers the entire belt width, or overhangs the belt slightly, before tightening down the hardware (Fig. 4).
- 5. Install safety chain. Using the safety chain kit provided, bolt the chain to the blade frame and then to the structure, ensuring the chain does not hang down or interfere with any moving parts of the plow or conveyor system (Fig. 5).
- 6. Check performance.

Run the belt and check that the plow runs smoothly and has an effective cleaning action. A final adjustment may be required.









Section 5 - Pre-Operation Checklist and Testing

5.1 Pre-Op Checklist

- Recheck that all fasteners are tightened properly.
- Check the blade location on the belt.
- Be sure that all installation materials and tools have been removed from the belt and the conveyor area.

5.2 Test Run the Conveyor

- Run the conveyor for at least 15 minutes and inspect the cleaning performance.
- Make adjustments as necessary.

NOTE: Observing the plow when it is running and performing properly will help to detect problems or when adjustments are needed later.



Flexco belt plows are designed to operate with minimum maintenance. However, to maintain superior performance some service is required. When the plow is installed a regular maintenance program should be set up. This program will ensure that the plow operates at optimal efficiency and problems can be identified and fixed before the plow stops working.

All safety procedures for inspection of equipment (stationary or operating) must be observed. The MXDP Diagonal Plow operates near the tail pulley and is in direct contact with the moving belt. Only visual observations can be made while the belt is running. Service tasks can be done only with the conveyor stopped and by observing the correct lockout/tagout procedures.

6.1 New Installation Inspection

After the new plow has run for a few days a visual inspection should be made to ensure the cleaner is performing properly. Make adjustments as needed.

6.2 Routine Visual Inspection (every 2-4 weeks)

A visual inspection of the plow and belt can determine:

- If the blade has optimal tensioning.
- If the belt looks clean or if there are areas that are dirty.
- If the blade is worn out and needs to be replaced.
- If there is damage to the blade or other belt plow components.
- If fugitive material is built up on the plow or in the transfer area.
- If there is cover damage to the belt.
- If there is vibration or bouncing of the plow on the belt.
- Check for build up on the leading return roll.

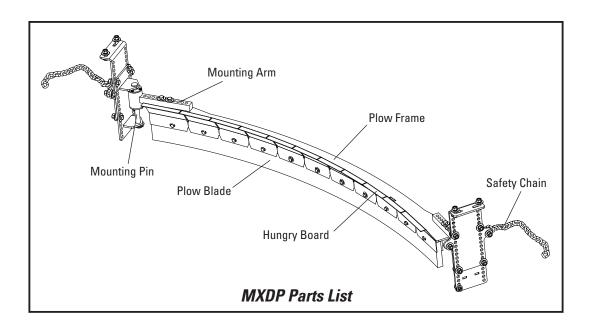
If any of the above conditions exist, a determination should be made on when the conveyor can be stopped for cleaner maintenance.

6.3 Routine Physical Inspection (every 6-8 weeks)

When the conveyor is not in operation and properly locked and tagged out a physical inspection of the belt plow to perform the following tasks:

- Clean material buildup off of the belt plow blade and frame.
- Closely inspect the blade for wear and any damage. Replace if needed.
- Ensure full blade to belt frame contact (tip should have slight clearance).
- Inspect the belt plow pole for damage.
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any worn or damaged components.
- When maintenance tasks are completed, test run the conveyor to ensure the belt plow is performing properly.

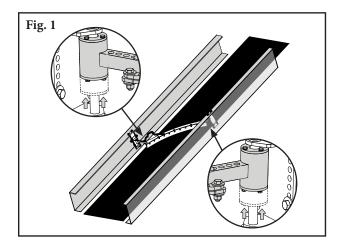
6.4 Blade Replacement



PHYSICALLY LOCK OUT AND TAG THE CONVEYOR AT THE POWER SOURCE BEFORE YOU BEGIN PLOW INSTALLATION.

Tools Needed:

- 3/4" (19mm) Wrench
- Ratchet straps or lifting equipment
- Blocking



1. Lift the plow frame/blade. Using the mounting arm/pin assembly along with a chain fall, ratchet strap, etc., lift the plow frame/blade off of the belt until the mounting arm reaches the top of the mounting pin (Fig. 1).

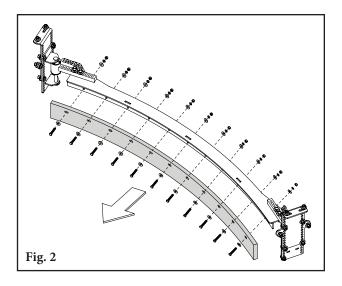
NOTE: Place blocking under the plow frame and/or the mounting arm if application allows.

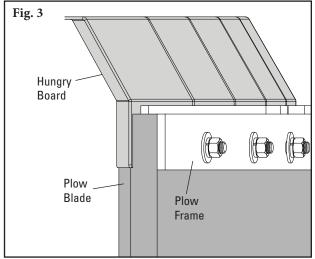
6.4 Blade Replacement

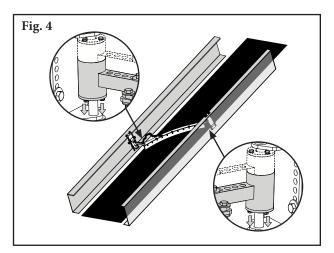
NOTE: Belt and structure not shown for clarity.

- 2. Remove blade from plow. Loosen and remove all bolts securing worn blade to plow main frame.

 After removing the worn blade, clean off all fugitive material on the belt plow. Units that feature a hungry board will need to remove the hungry board to replace the worn blade. Hungry board may be re-used if still in good condition (Fig. 2).
- 3. **Install new blade.** Use current bolts to secure new blade to belt plow main frame. If also using hungry board, re-install with the blade (Fig. 3).
- **4. Safely and slowly release the plow frame from blocking and/or suspension.** Ensure the blade makes full contact with the belt and does not bind on the mounting pin (Fig. 4).
- 5. Check performance. Run the belt and check that the plow runs smoothly and has an effective cleaning action. A final adjustment may be required.







6.5 Maintenance Log

Conveyor Name/No.		
Date:	Work done by:	Service Quote #:
Activity:		
	Work done by:	
Date:	Work done by:	Service Quote #:
	Work done by:	Service Quote #:
Activity:		
	Work done by:	Service Quote #:
Activity:		
Date:	Work done by:	Service Quote #:
Activity:		
Date:	Work done by:	Service Quote #:
Activity:		

6.6 Plow Maintenance Checklist

Site:			Inspected by	/ :			D	ate:	
Plow:					Seria	al Number:			
Beltline Information Beltline Number: _			Relt Condi	tion:					
Belt □ 4 Width: (1200n		□ 54" □ 6 350mm) (1500m	60" □ 66" nm) (1650mm)				1" □ 96" im) (2400mm)	□ 108" (2700mm)	□ 120" (3000mm)
Belt Speed:	fpm	Belt Thi	ckness:						
Belt Splice:		Condition of Sp	lice:	_ Number	of Splice	s:	☐ Skived ☐ *It is recomm on the belt b	ended that m	echanical fasteners
Material conveyed	d:								
Days per week run	1:	I	Hours per day r	un:		_			
Blade Life:									
Date blade installe	ed:		Date blade ins	pected:		Esti	mated blade life	<u>:</u>	
Is blade making co	mplete	contact with be	elt?	□ Yes	□No				
Blade wear: Left		eft	Middle			Right			
Blade condition: ☐ Good		□ Good	☐ Grooved	☐ Grooved ☐ Smiled		□ Not o	☐ Not contacting belt ☐		aged
Was Plow Adjuste	ed:	☐ Yes	□No						
Frame Condition:		□ Good	☐ Bent	□ Worn					
Lagging:	□ Si	de Lag 🛚 🖺	□ Ceramic	□ Rubber	r [□ Other	☐ None		
Condition of laggin	ng:	□ Good	☐ Bad	□ 0th	ner				
Plow's Overall Pe	rforman	ce:	(Rate the follow	ving 1 - 5, 1=	very poo	or - 5 = very	good)		
Appearance:	□:	Comments:							
Location::	□:	Comments:							
Maintenance::	□:	Comments:							
Performance::	□:	Comments:							
Other comments:									

Section 7 - Troubleshooting

Problem

Material getting through

Unequal blade wear

Excessive vibration

Material building up behind plow/ not falling off belt Angle of blade not steep enough Worn blade Lack of blade coverage Ensure 45° blade angle Replace blade Check blade angle (45°)

Possible Cause

Space between blade and belt

Mounting not level

Loose hardware

Mounting arm damage

Mechanical splice damaging blade

Mechanical splice damaging blade

Possible Solutions

Adjust mounting bracket or clear any debris

Check and adjust height of mounting points

preventing vertical movement

Repair, skive or replace splice

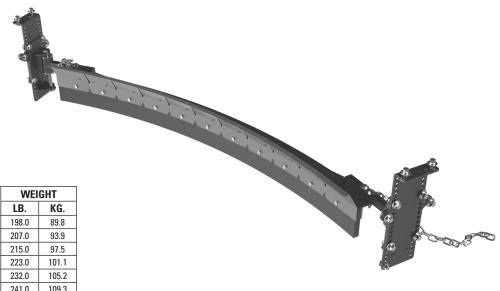
Repair, skive or replace splice

Inspect, tighten hardware

Inspect, replace mounting arms

Section 8 - Specs and CAD Drawings

8.1 Specs and Guidelines



MXDP Diagonal Plow

BELT WIDTH		ORDERING	ITEM	WEIGHT		
in.	mm	NUMBER	CODE	LB.	KG.	
48	1200	MXDP-48/1200	106063	198.0	89.8	
54	1350	MXDP-54/1350	106064	207.0	93.9	
60	1500	MXDP-60/1500	106065	215.0	97.5	
66	1650	MXDP-66/1650	106066	223.0	101.1	
72	1800	MXDP-72/1800	106067	232.0	105.2	
78	1950	MXDP-78/1950	106068	241.0	109.3	
84	2100	MXDP-84/2100	106069	249.0	112.9	
96	2400	MXDP-96/2400	106070	266.0	120.6	
108	2700	MXDP-108/2700	106071	283.0	128.3	
120	3000	MXDP-120/3000	106072	300.0	136.1	
Laad time	. 4		•	•	•	

Lead time: 4 weeks

MXDP Diagonal Plow with Hungry Board

BELT \	NIDTH	ORDERING	ITEM	WEIGHT	
in.	mm	NUMBER	CODE	LB.	KG.
48	1200	MXDP-48/1200-H	106265	218.0	98.9
54	1350	MXDP-54/1350-H	106266	229.0	103.9
60	1500	MXDP-60/1500-H	106267	239.0	108.4
66	1650	MXDP-66/1650-H	106268	249.0	112.9
72	1800	MXDP-72/1800-H	106269	260.0	117.9
78	1950	MXDP-78/1950-H	106270	272.0	123.4
84	2100	MXDP-84/2100-H	106271	281.0	127.4
96	2400	MXDP-96/2400-H	106272	302.0	137.0
108	2700	MXDP-108/2700-H	106273	324.0	146.9
120	3000	MXDP-120/3000-H	106274	345.0	156.5

Lead time: 4 weeks

Replacement Blades

ORDERING	ITEM	WEIGHT		
NUMBER	CODE	LB.	KG.	
MXDPB-48/1200	106122	26.0	11.8	
MXDPB-54/1350	106123	29.0	13.2	
MXDPB-60/1500	106124	31.0	14.1	
MXDPB-66/1650	106125	34.0	15.4	
MXDPB-72/1800	106126	37.0	16.8	
MXDPB-78/1950	106127	40.0	18.1	
MXDPB-84/2100	106128	43.0	19.5	
MXDPB-96/2400	106129	48.0	21.8	
MXDPB-108/2700	106130	54.0	24.5	
MXDPB-120/3000	106131	59.0	26.8	

Lead time: 4 weeks

Specifications:

•	Maximum Belt S	peed	2000 FPI	VI (10.0 m/s)
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Belt DirectionOne Way

Temperature Rating-20 to 180°F (-30 to 82°C)

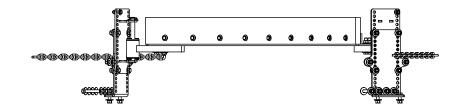
Available for Belt Widths48 to 120" (1200 to 3000mm)

Belt SpliceMechanically Fastened/Vulcanized

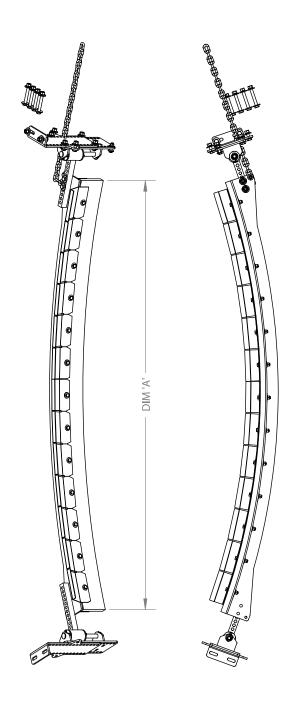
Blade MaterialPolyurethane

Section 8 - Specs and CAD Drawings

8.2 CAD Drawing



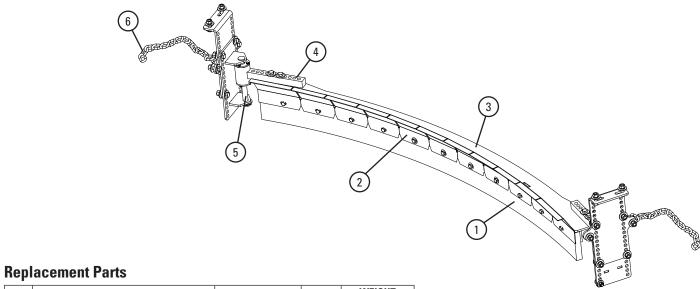
r BLADE	ITEM CODE	106122	106123	106124	106125	106126	106127	106128	106129	106130	106131
REPLACEMENT BLADE	ORDER NUMBER	MXDPB 48/1200	MXDPB-54/1350	MXDPB-60/1500	MXDPB-66/1650	MXDPB-72/1800	MXDPB-78/1950	MXDPB-84/2100	MXDPB-96/2400	MXDPB-108/2700	MXDPB-120/3000
W WITH	ITEM CODE	106265	106266	106267	106268	106269	106270	106271	106272	106273	106274
MX DIAGONAL PLOW WITH HUNGRY BOARD	ORDER NUMBER	MXDP-48/1200 - H	MXDP-54/1350 - H	MXDP-60/1500 - H	MXDP-66/1650 - H	MXDP-72/1800 - H	MXDP-78/1950 - H	MXDP-84/2100 - H	MXDP-96/2400 - H	MXDP-108/2700 - H	MXDP-120/3000 - H
IL PLOW	ITEM CODE	106063	106064	106065	106066	106067	106068	106069	106070	106071	106072
MX DIAGONAL PLOW	ORDER NUMBER	MXDP-48/1200	MXDP-54/1350	MXDP-60/1500	MXDP-66/1650	MXDP-72/1800	MXDP-78/1950	MXDP-84/2100	MXDP-96/2400	MXDP-108/2700	MXDP-120/3000
ATIONS	DIM 'A'	71-5/8	79-1/2	87-3/8	94-5/16	103-1/8	111-1/16	118-7/8	134-9/16	150-1/4	166
SPECIFICATIONS	BELT WIDTH	48	54	09	99	72	78	84	96	108	120





Section 9 - Replacement Parts

9.1 Replacement Parts List



		ORDERING	ITEM	WEIGHT		
REF	DESCRIPTION	NUMBER	CODE	LB.	KG.	
	Replacement Blade 48" (1200mm)	MXDPB-48/1200	106122	26.0	11.8	
1	Replacement Blade 54" (1350mm)	MXDPB-54/1350	106123	29.0	13.2	
	Replacement Blade 60" (1500mm)	MXDPB-60/1500	106124	31.0	14.1	
	Replacement Blade 66" (1650mm)	MXDPB-66/1650	106125	34.0	15.4	
	Replacement Blade 72" (1800mm)	MXDPB-72/1800	106126	37.0	16.8	
'	Replacement Blade 78" (1950mm)	MXDPB-78/1950	106127	40.0	18.1	
	Replacement Blade 84" (2100mm)	MXDPB-84/2100	106128	43.0	19.5	
	Replacement Blade 96" (2400mm)	MXDPB-96/2400	106129	48.0	21.8	
	Replacement Blade 108" (2700mm)	MXDPB-108/2700	106130	54.0	24.5	
	Replacement Blade 120" (3000mm)	MXDPB-120/3000	106131	59.0	26.8	
	Hungry Board 48" (1200mm)	MXDPH-48/1200	106106	20.0	9.1	
2	Hungry Board 54" (1350mm)	MXDPH-54/1350	106107	22.0	10.0	
	Hungry Board 60" (1500mm)	MXDPH-60/1500	106108	25.0	11.3	
	Hungry Board 66" (1650mm)	MXDPH-66/1650	106109	26.0	11.8	
	Hungry Board 72" (1800mm)	MXDPH-72/1800	106110	28.0	12.7	
	Hungry Board 78" (1950mm)	MXDPH-78/1950	106111	31.0	14.1	
	Hungry Board 84" (2100mm)	MXDPH-84/2100	106112	33.0	15.0	
	Hungry Board 96" (2400mm)	MXDPH-96/2400	106113	36.0	16.3	
	Hungry Board 108" (2700mm)	MXDPH-108/2700	106114	41.0	18.6	
	Hungry Board 120" (3000mm)	MXDPH-120/3000	106115	45.0	20.4	
	Frame 48" (1200mm)	MXDPF-48/1200	106634	54.0	24.5	
	Frame 54" (1350mm)	MXDPF-54/1350	106635	60.0	27.2	
	Frame 60" (1500mm)	MXDPF-60/1500	106636	65.0	29.5	
	Frame 66" (1650mm)	MXDPF-66/1650	106637	70.0	31.7	
3	Frame 72" (1800mm)	MXDPF-72/1800	106638	76.0	34.5	
3	Frame 78" (1950mm)	MXDPF-78/1950	106639	81.0	36.7	
	Frame 84" (2100mm)	MXDPF-84/2100	106640	87.0	39.5	
	Frame 96" (2400mm)	MXDPF-96/2400	106641	98.0	44.4	
	Frame 108" (2700mm)	MXDPF-108/2700	106642	109.0	49.4	
	Frame 120" (3000mm)	MXDPF-120/3000	106643	120.0	54.4	
4	Mounting Arm Kit (1 ea.; hardware included)	MXDP-MAK	106095	26.0	11.8	
5	Mounting Pin Kit (1 ea.; hardware included)	MXDP-MPK	106548	3.0	1.4	
6	Safety Chain Kit (1 ea.; hardware included)	MXCP-SCK	106624	5.0	2.3	
-	Mounting Kit - Complete (includes 2 each mounting plates, 4, 5, 6)	MXDP-MK	106549	115.0	52.2	

Lead time: 4 weeks

Section 10 - Other Flexco Conveyor Products

Flexco provides many conveyor products that help your conveyors to run more efficiently and safely.

These components solve typical conveyor problems and improve productivity. Here is a quick overview on just a few of them:

MMP Precleaner

- Medium-duty mining precleaner with TuffShear * blade
- Heavy-duty, 3-piece design pole with dual tensioners
- Allows for visual tension check
- Optional Stainless Steel components for superior corrosion resistance

CBS Belt Cleaner



- The thin, hard edge of the metal blade delivers high cleaning efficiency and long wear life.
- Made from heavy-duty, corrosion-resistant steel, the CBS is available in sizes for belt widths from 18 to 96" (450 to 2400mm).
 - Additional sizes are available upon request.
- Flat blade for new or lightly used belts, or curved blade for worn or cupped belts.

Flexco Specialty Belt Cleaners



- "Limited space" cleaners for tight conveyor applications
- High Temp cleaners for severe, high heat applications
- A rubber fingered cleaner for chevron and raised rib belts
- Multiple cleaner styles in stainless steel for corrosive applications

DRX™ Impact Beds



- • Exclusive Velocity Reduction Technology ⊤ to better protect the belt
- Slide-Out Service™ gives direct access to all impact bars for change-out
- Impact bar supports for longer bar life
- 4 models to custom fit to the application

PT Max[™] Belt Trainer



- Patented "pivot & tilt" design for superior training action
- Dual sensor rollers on each side to minimize belt damage
- Pivot point guaranteed not to freeze or seize up
- Available for topside and return side belts



