

RDP1 Diagonal Plow

Installation, Operation and Maintenance Manual



RDP1 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 RDP1 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:

Web site: Flexco.com

Customer Service: USA: 1-800-541-8028

Australia: 61-2-8818-2000 • China: 86-21-33528388

England: 44-1274-600-942 • Germany: 49-7428-9406-0

India: 91-44-6551-7771 • Mexico: 52-55-5674-5326

Singapore: 65-6484-1533 • South Africa: 27-11-608-4180

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 RDP1 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 RDP1 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

DANGER

It is imperative that OSHA/MSHA Lockout/Tagout (LOTO) regulations, 9 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

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

DANGER

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

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.

WARNING

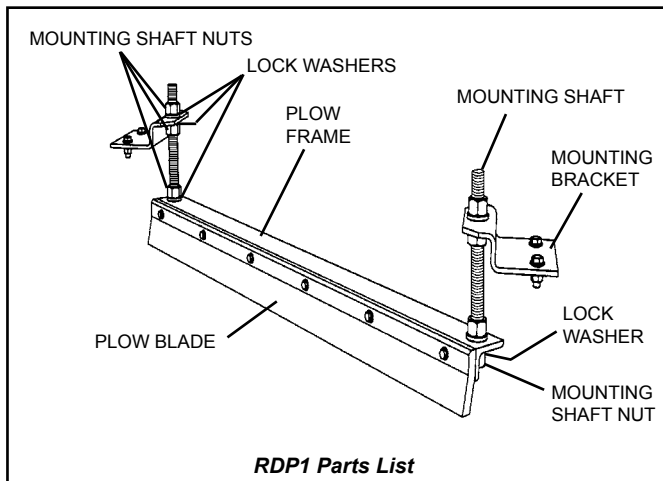
Never adjust anything on an operating plow. Unforseeable belt projections and tears can catch on plows and cause violent movements of the plow structure. Flailing hardware can cause serious injury or death.

Section 3 - Pre-installation Checks and Options

3.1 Checklist

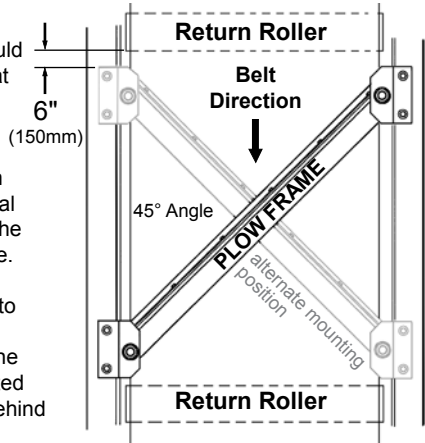
- Check that the plow size is correct for the beltline width
- Check the product carton and make sure all the parts are included
- Review the “Tools Needed” list on the top of the installation instructions
- Check the conveyor site:
 - Are there obstructions that may require plow location adjustments
 - Ensure proper clearance is available between topside and return side belts (5”/ 150mm)

Section 4 - Installation Instructions - RDP1 Diagonal Plow



Locating the Plow

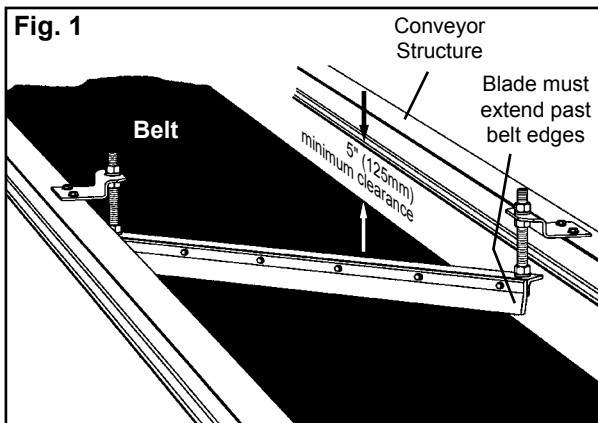
- Ideally the plow should be positioned in a flat area and as close to the tail pulley as possible.
- Requires a minimum of 5" (125mm) vertical clearance between the belt and the structure.
- Can be installed to discharge materials to either side.
- For optimal results the plow should be located about 6" (150mm) behind a flat return roller.



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

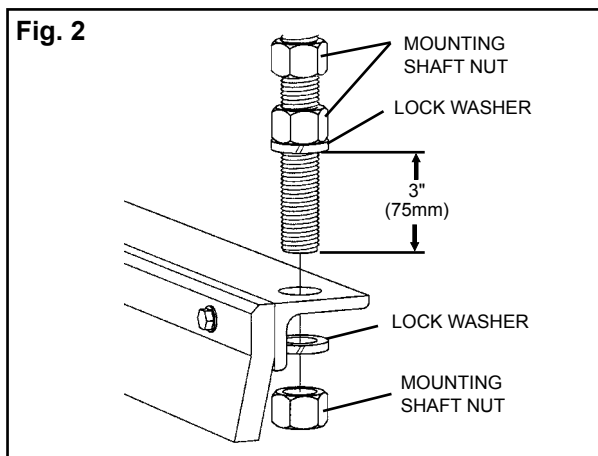
Tools Needed:

- 9/16" (14mm) wrench
- 3/4" (19mm) wrench
- 1 1/2" (38mm) wrench
- Tape Measure



- 1. Position the plow 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 (Fig. 1).

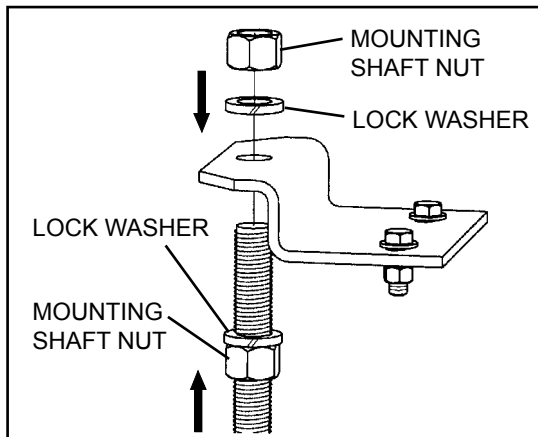
NOTE: The plow frame should generally be installed at a 45° angle; this may vary depending on structure width. Both ends must be positioned past the belt's edges.



- 2. Attach the mounting shaft to the plow frame.** Thread two mounting shaft nuts up the mounting shaft to expose 3" (75mm) of thread past the nut. Next place a lock washer against the lower nut and slide the mounting shaft down through the hole in the plow frame (Fig. 2). From the bottom side of the plow frame place a lock washer and mounting shaft nut on the mounting shaft and tighten. Repeat on opposite side.

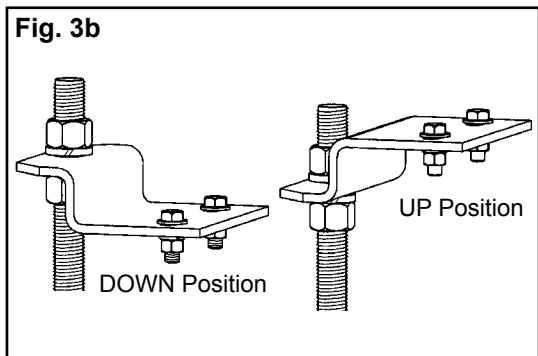


Section 4 – Installation Instructions (cont.)



3. **Install the mounting brackets on the mounting shafts.** Put a lock washer onto each mounting shaft and slide the mounting brackets on (Fig. 3a).

NOTE: The mounting bracket is reversible to allow for two mounting options (Fig. 3b). Position the mounting brackets on the structure to allow free vertical movement of the plow frame. Put another lock washer and nut on the shaft and turn down to the mounting bracket. Tighten the top nut on both sides until the plow blade is sitting evenly on the belt. Turn the nut immediately below the bracket up to the bottom of the mounting bracket and tighten, locking the plow in position. Weld or bolt the mounting brackets to the conveyor structure.



4. **Check performance.** Run the belt and check that the plow runs smoothly and has an effective cleaning action. A final adjustment may be required. To raise or lower the unit, adjust the nuts against the mounting bracket up or down.

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 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.

Section 6 - Maintenance

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 RDP1 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

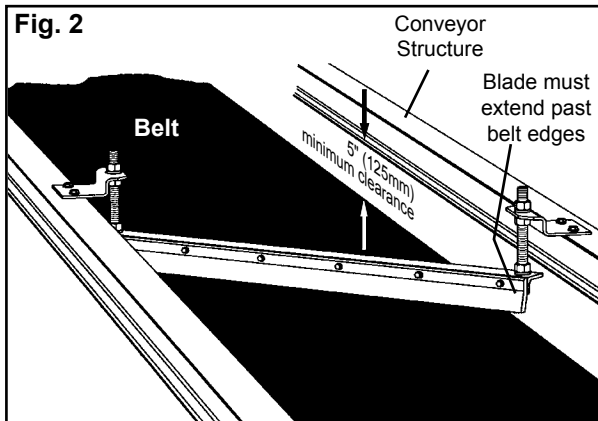
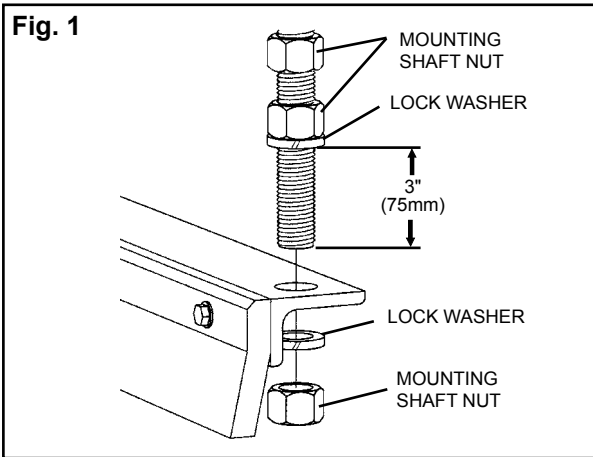
Section 6 - Maintenance (cont.)

6.4 Blade Replacement Inspection

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

Tools Needed:

- 9/16" (14mm) wrench
- 3/4" (19mm) wrench
- 1 1/2" (38mm) wrench
- Tape Measure



1. **Loosen mounting shaft nuts.** The bottom two mounting shafts nuts on both sides of the plow should be loosened so that the worn blade will have no tension to the belt (Fig 1.)

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 (Fig. 2)
3. **Install new blade.** Use current bolts to secure new blade to belt plow main frame.
4. **Position diagonal plow to the belt.** Ensure the new blade is making constant contact with the belt.

5. **Test run and inspect.** Run the belt and check that the plow runs smoothly and has an effective cleaning action. To raise or lower the unit, adjust the nuts against the mounting bracket up or down.

Section 6 - Maintenance (cont.)

6.6 Maintenance Log

Conveyor Name/No. _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Date: _____ Work done by: _____ Service Quote # _____

Activity: _____

Section 6 - Maintenance (cont.)

6.6 Plow Maintenance Checklist

Plow: _____ Serial Number: _____

Beltline Information:

Beltline Number: _____ Belt Condition: _____

Belt Width: 18" 24" 30" 36" 42" 48" 54" 60" 72" 84"
(450mm) (600mm) (750mm) (900mm) (1050mm) (1200mm) (1350mm) (1500mm) (1800mm) (2100mm)

Head Pulley Diameter (Belt & Lagging): _____ Belt Speed: _____ fpm Belt Thickness: _____

Belt Splice _____ Condition of Splice _____ Number of splices _____ Skived Unskived

Material conveyed _____

Days per week run _____ Hours per day run _____

Blade Life:

Date blade installed: _____ Date blade inspected: _____ Estimated blade life: _____

Is blade making complete contact with belt? Yes No

Distance from wear line: LEFT _____ MIDDLE _____ RIGHT _____

Blade condition: Good Grooved Smiled Not contacting belt Damaged

Was Plow Adjusted: Yes No

Frame Condition: Good Bent Worn

Lagging: Slide lag Ceramic Rubber Other None

Condition of lagging: Good Bad Other _____

Plow's Overall Performance: (Rate the following 1 - 5, 1=very poor - 5= very good)

Appearance: Comments: _____

Location: Comments: _____

Maintenance: Comments: _____

Performance: Comments: _____

Other Comments: _____



Section 7 - Troubleshooting

Problem	Possible Cause	Possible Solutions
Material building up behind plow/ not falling off belt	Angle of blade not steep enough	Ensure 45° blade angle
Material getting through	Worn blade	Replace blade
	Lack of blade coverage	Check blade angle (45°)
	Space between blade and belt	Reposition height
	Mechanical splice damaging blade	Repair, skive or replace splice
Unequal blade wear	Mounting bolts not level	Check and adjust height of mounting points

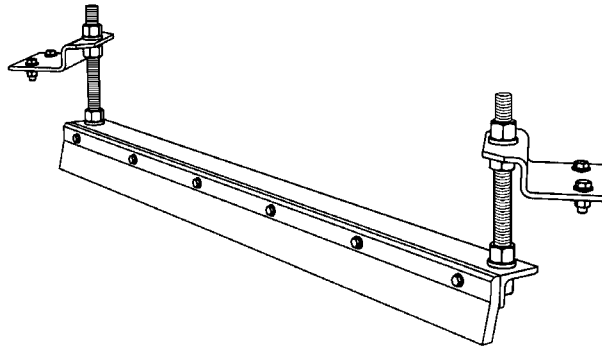
Section 8 - Specs and CAD Drawings

8.1 Specs and Guidelines

Diagonal Plow Belt Width Specifications

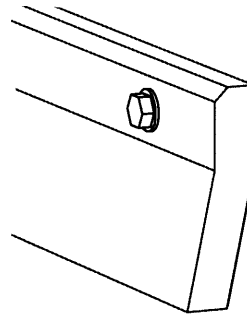
SIZE	BELT WIDTH (Min-Max)	
	mm	in.
Small	450-750	18-30
Medium	900-1050	36-42
Large	1200-1500	48-60
Extra Large	1800-2100	72-84

Use next larger size for belt widths between ranges.



Diagonal Plow Blade Specifications

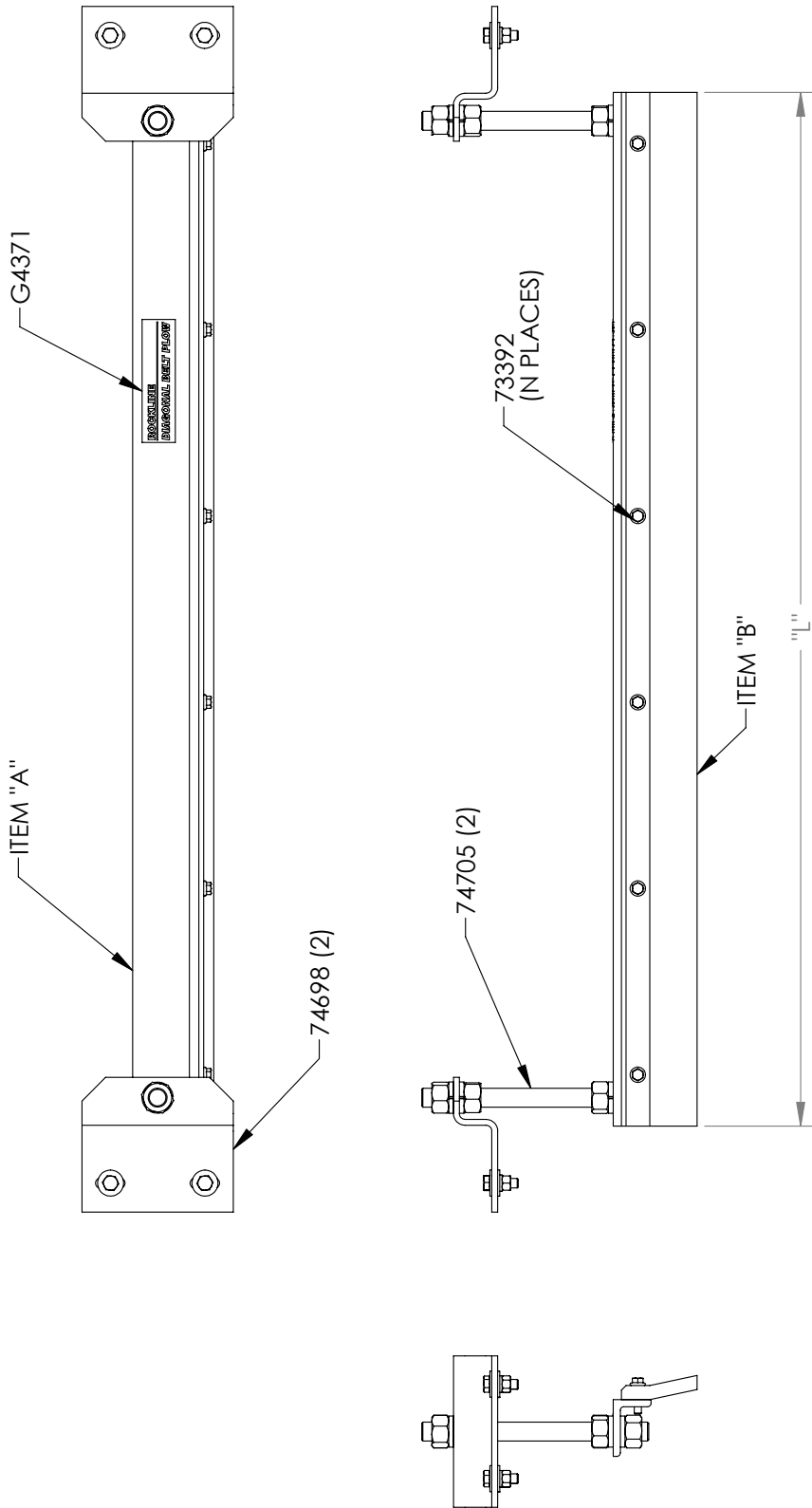
Material	UHMWPE
Durometer	67-D
Working Temperature	
°C	-40° to 71°
°F	-40° to 160°
Grease & Chemical Resistance	Excellent
Sticky Material Performance	Excellent



Application Guidelines

- Belt Splice Mechanically Fastened/Vulcanized
- Belt Speed..... 3.5M/sec (700 FPM)
- Belt Direction..... One Way

8.2 CAD Drawing



PART #	SIZE	BELT WIDTH	ITEM "A"	ITEM "B"	DIM "L"	QTY "N"
74692	SMALL	18"-30"	G3849	G1096	37 1/4	4
74693	MEDIUM	36"-42"	G3850	G1097	54 5/8	6
74694	LARGE	48"-60"	G3851	G1098	78 5/8	8
74695	X LARGE	72"-84"	G4153	G4219	124	13

Section 9 - Replacement Parts

9.1 Replacement Parts List

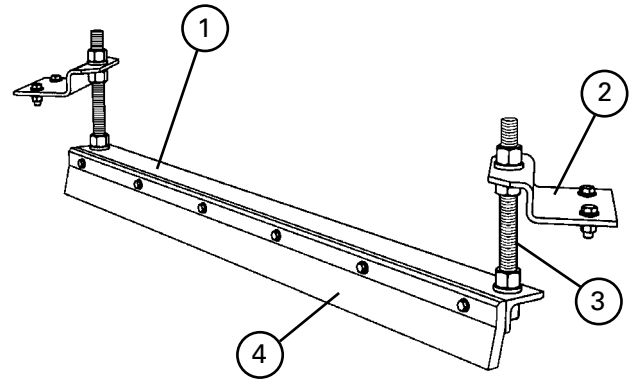
Replacement Parts - Diagonal Plow

REF	DESCRIPTION	BELT WIDTH (Min-Max)		ORDERING NUMBER	ITEM CODE	WT. LBS.
		mm	in.			
1	Small Plow Frame	450-750	18-30	RDPF-S	75566	18.1
	Medium Plow Frame	900-1050	36-42	RDPF-M	75567	26.3
	Large Plow Frame	1200-1500	48-60	RDPF-L	75568	38.4
	Extra Large Plow Frame	1800-2100	72-84	RDPF-XL	75569	60.7
2	Mounting Bracket Kit* (1 ea.)			RDPMBK	74698	6.1
3	Mounting Shaft Kit* (1 ea.)			RDPMSK	74705	3.6
REPLACEMENT BLADE KITS**						
4	Small Plow Blade Kit	450-750	18-30	RDPBK-S	74699	4.0
	Medium Plow Blade Kit	900-1050	36-42	RDPBK-M	74700	5.6
	Large Plow Blade Kit	1200-1500	48-60	RDPBK-L	74701	8.4
	Extra Large Plow Blade Kit	1800-2100	72-84	RDPBK-XL	74702	12.0

*Hardware included

**Kit includes blades and replacement blade bolts.

Lead time: 1 working day



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:

EZP1 Precleaner



- Patented ConShear™ blade renews its cleaning edge as it wears
- Visual Tension Check™ for optimal blade tensioning and simple retensioning
- Quick and easy one-pin blade replacement
- Material Path Option™ for optimal cleaning and reduced maintenance

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

EZS2 Secondary Cleaner



- Long-wearing tungsten carbide blades for superior cleaning efficiency
- Patented FormFlex™ cushions independently tension each blade to the belt for consistent, constant cleaning power
- Easy to install, simple to service
- Works with Flexco mechanical belt splices

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 up
- Available for topside and return side 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

The Flexco Vision

To become the leader in maximising
belt conveyor productivity for our customers worldwide
through superior service and innovation.

