RDP1 Diagonal Plough

Installation, Operation and Maintenance Manual

FLEXCO

RDP1 Diagonal Plough

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.

Table of Contents

Section 1 - Important Information

1.1 General Introduction

We at Flexco are very pleased that you have selected a RDP1 Diagonal Plough 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:

Customer Service: +27-11-608-4180

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 product. 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 plough and other conveyor components

1.3 Service Option

The RDP1 Diagonal Plough 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 Plough, 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
- Tension adjustments
- Blade replacement
- Cleaning
- Repairs

⚠ DANGER

It is imperative that OSHA/MSHA Lockout/Tagout (LOTO) regulations be followed before undertaking the preceding activities. Failure to use LOTO exposes workers to uncontrolled behavior of the plough 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 conveyor plough. 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 plough is an in-running nip hazard. Never touch or prod an operating plough. Plough hazards cause instantaneous amputation and entrapment.

⚠ WARNING

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

⚠ WARNING

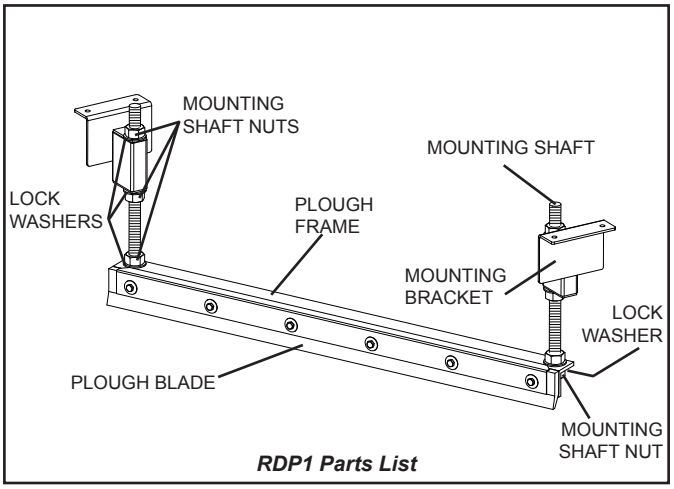
Ploughs can become projectile hazards. Stay as far from the plough as practical and use safety eyewear and headgear. Missiles can inflict serious injury.

Section 3 - Pre-installation Checks and Options

3.1 Checklist

- Check that the plough 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 cleaner location adjustments
  - Ensure proper clearance is available between returnside belt and structure (125mm)

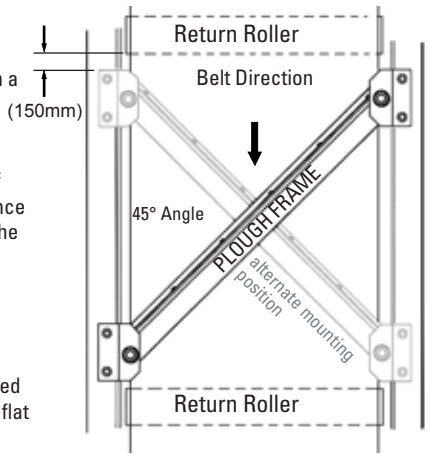
Section 4 - Installation Instructions - RDP1 Diagonal Plough



RDP1 Parts List

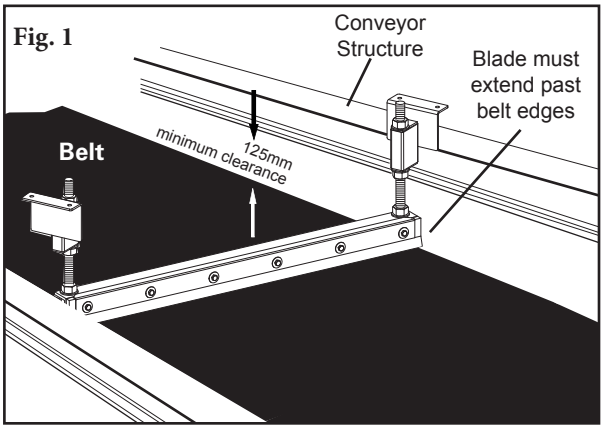
Locating the Plough

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

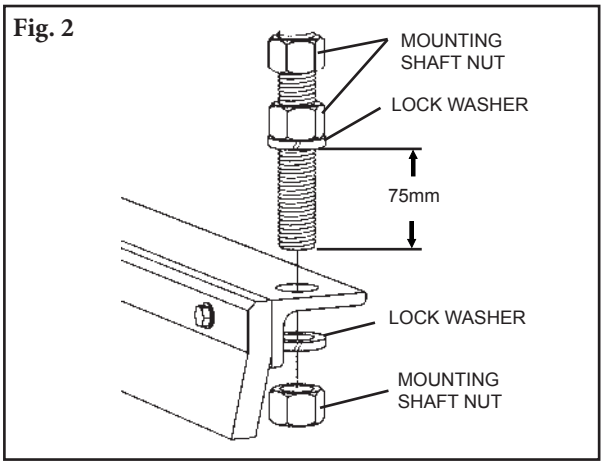


Physically lock out and tag the conveyor at the power source before you begin plough installation.

Tools Needed:
- 14mm wrench
- 19mm wrench
- 38mm wrench
- Tape Measure



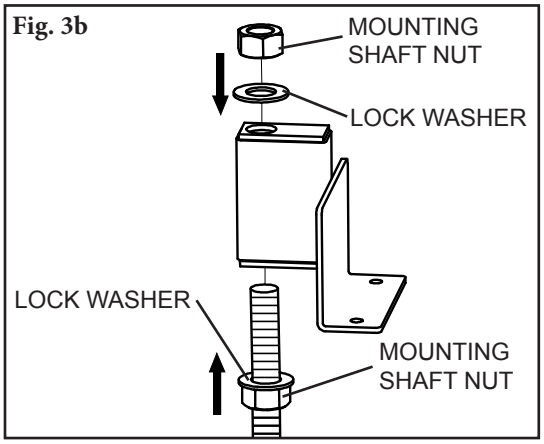
1. **Position the plough frame on the conveyor.** Slide the plough onto the belt in the selected location. Check for structure interference at both ends where the mounting brackets will be attached to the structure (Fig. 1).
NOTE: The plough frame should generally be installed at a 45° angle; this may vary depending on structure width. Both ends of the plough must protude past the belt edge.



2. **Attach the mounting shaft to the plough frame.** Thread two mounting shaft nuts up the mounting shaft to expose between 50mm to 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 plough frame (Fig. 2). From the bottom side of the plough frame place a lock washer and mounting shaft nut on the mounting shaft and tighten. Repeat on opposite side.

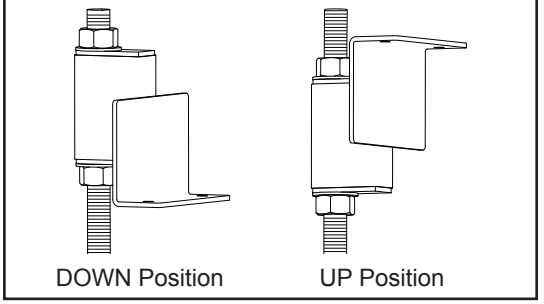
Section 4 – Installation Instructions (cont.)

Fig. 3b



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 plough 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 plough 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 plough in position. Weld or bolt the mounting brackets to the conveyor structure.

Fig. 3b



4. Check performance. Run the belt and check that the plough 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 plough when it is running and performing properly will help to detect problems or when adjustments are needed later.

Section 6 - Maintenance

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

All safety procedures for inspection of equipment (stationary or operating) must be observed. The RDP1 Diagonal Plough 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 plough has run for a few days a visual inspection should be made to ensure the plough is performing properly. Make adjustments as needed.

6.2 Routine Visual Inspection (every 2-4 weeks)

A visual inspection of the plough 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 plough components
- If fugitive material is built up on the plough or in the transfer area
- If there is cover damage to the belt
- If there is vibration or bouncing of the plough 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 plough to perform the following tasks:

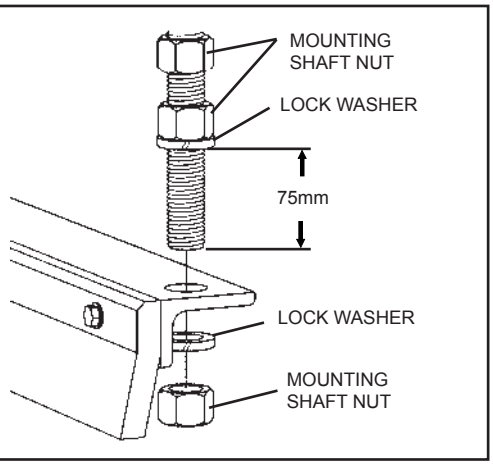
- Clean material buildup off of the belt plough blade and frame
- Closely inspect the blade for wear and any damage. Replace if needed.
- Ensure full blade to belt contact
- Inspect the belt plough frame for damage
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace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

6.4 Blade Replacement Inspection

Physically lock out and tag the conveyor at the power source before you begin plough installation.

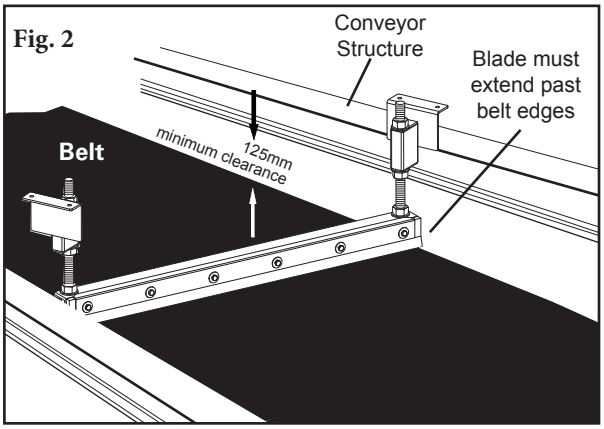
Tools Needed:
- 14mm wrench
- 19mm wrench
- 38mm wrench
- Tape Measure

Fig. 1



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

Fig. 2



2. **Remove blade from plough.** Loosen and remove all bolts securing worn blade to plough main frame. After removing the worn blade, clean off all fugitive material on the belt plough (Fig. 2)
3. **Install new blade.** Use current bolts to secure new blade to belt plough main frame.
4. **Position diagonal plough to the belt.** Ensure the new blade is making constant contact with the belt. Retighten mounting shaft nuts ensuring the new blade maintains constant contact with the belt.
5. **Test run and inspect.** Run the belt and check that the plough 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: _____

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

Activity: _____

Section 6 - Maintenance (cont.)

6.6 Plough Maintenance Checklist

Plough: _____ **Serial Number:** _____

Beltline Information:

Beltline Number: _____ Belt Condition: _____

Belt Width: ☐ 450mm ☐ 600mm ☐ 750mm ☐ 900mm ☐ 1050mm ☐ 1200mm ☐ 1350mm ☐ 1500mm ☐ 1800mm ☐ 2100mm ☐ 2400mm

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 Plough Adjusted: ☐ Yes ☐ No

Frame Condition: ☐ Good ☐ Bent ☐ Worn

Lagging: ☐ Slide lag ☐ Ceramic ☐ Rubber ☐ Other ☐ None

Condition of lagging: ☐ Good ☐ Bad ☐ Other_____

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

Appearance: ☐ Comments:_____

Location: ☐ Comments:_____

Maintenance: ☐ Comments:_____

Performance: ☐ Comments:_____

Other Comments:_____

_____

_____

_____

_____

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_____

_____

Section 7 - Troubleshooting

Problem	Possible Cause	Possible Solutions
Material building up behind plough/ 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

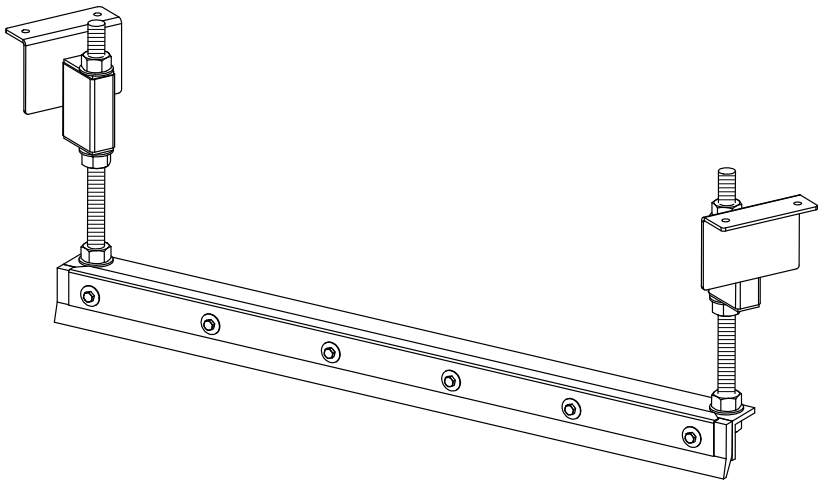
Section 8 - Specs and CAD Drawings

8.1 Specs and Guidelines

Diagonal Plough 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.

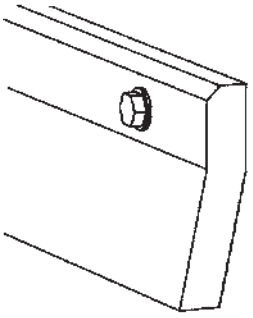


Application Guidelines

- Belt Splice..... Mechanically Fastened/Vulcanized
- Belt Speed..... 3.5m/s (700 FPM) for Diagonal Plough
- Belt Direction..... One Way

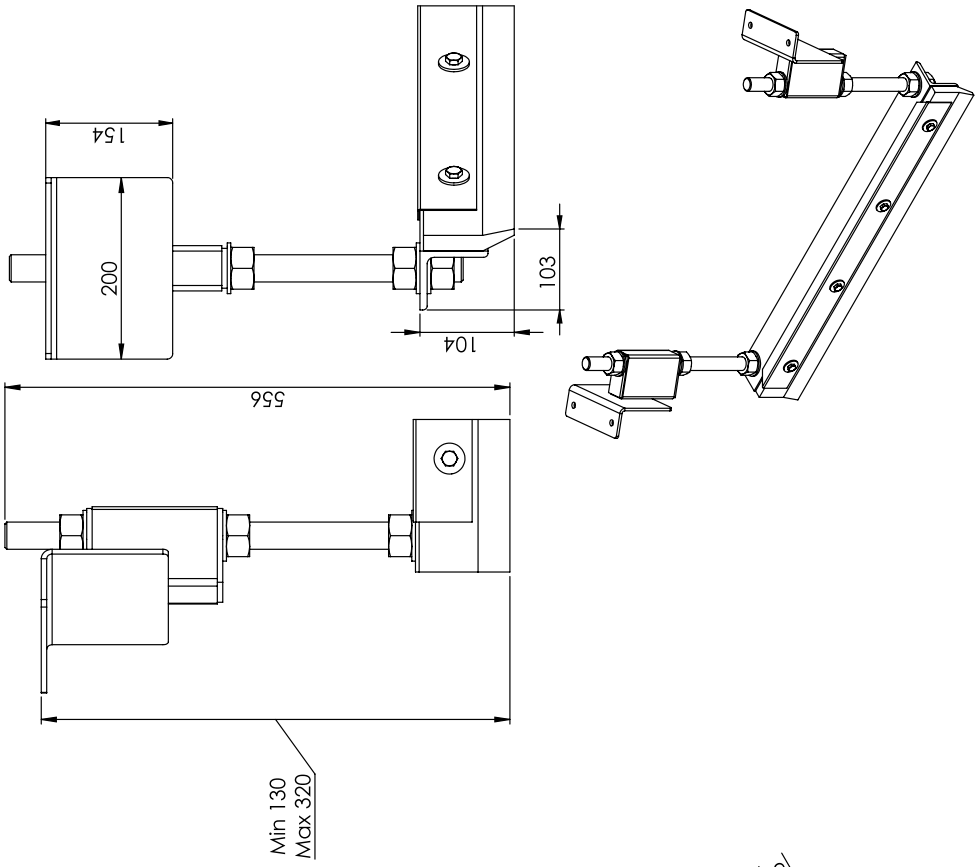
Diagonal Plough Blade Specifications

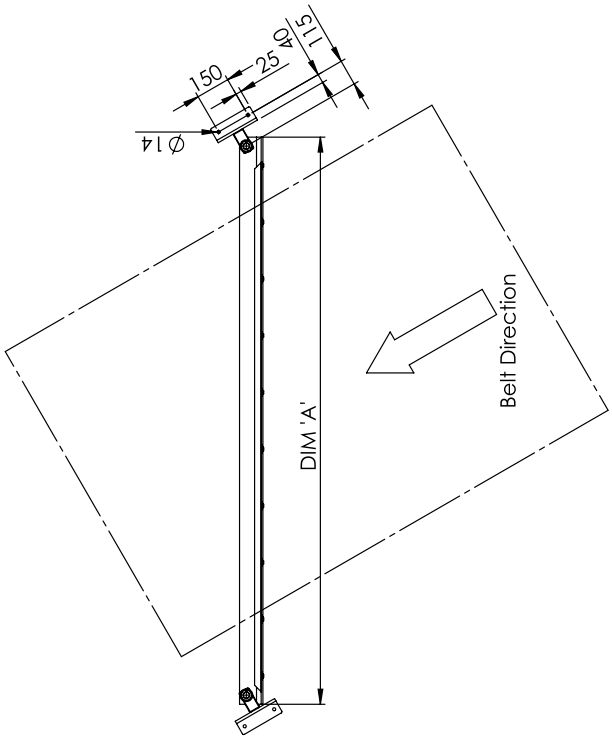
Material	Polyurethane
Durometer	50 Shore D
Working Temperature	
°C	-40° to 71°
°F	-40° to 160°
Grease & Chemical Resistance	Good
Sticky Material Performance	Excellent



Section 8 - Specs and CAD Drawings

8.2 CAD Drawings



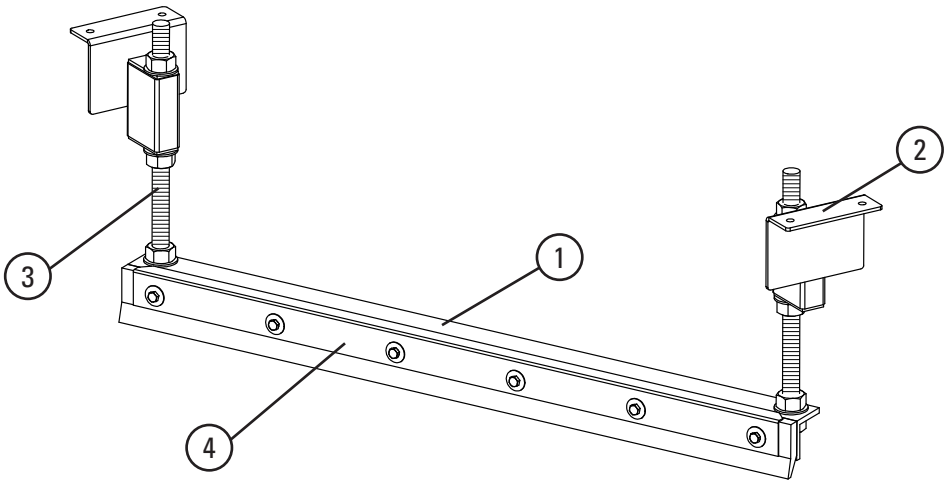


REF	DESCRIPTION	BELT WIDTH	ORDER NUMBER	ITEM CODE	WT KG
1	Small Plough Frame	450-750	DPF-S	75566	9
	Medium Plough Frame	900-1050	DPF-M	75567	13
	Large Plough Frame	1200-1500	DPF-L	75568	18
	Extra Large Plough Frame	1800-2100	DPF-XL	75569	22.5
2	Mounting Bracket (1 ea.)	All	DB-MB	74325	3.8
3	Threaded Bolt Kit*	All	BD-TB	61171	3
4	Small Plough Blade	450-750	DBK-S	76446	1.8
	Medium Plough Blade	900-1050	DBK-M	76447	2.6
	Large Plough Blade	1200-1500	DBK-L	76448	3.6
	Extra Lardge Plough Blade	1800-2100	DBK-XL	76449	4.5
5	Small Plough Face Plate	450-750	DPFP-S	A0001	1.1
	Medium Plough Face Plate	900-1050	DPFP-M	A0002	1.7
	Large Plough Face Plate	1200-1500	DPFP-L	A2152	2.2
	Extra Large Plough Face Plate	1800-2100	DPFP-XL	A1705	2.7

*Note include fasteners

Section 9 - Replacement Parts

9.1 Replacement Parts List



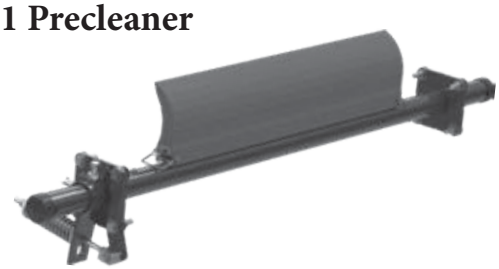
REF	DESCRIPTION	BELT WIDTH (Min-Max)		ORDERING NUMBER	ITEM CODE	WT. KG.
		mm	in.			
1	Small Plough Frame	450-750	18-30	CBD-S	75566	9.0
	Medium Plough Frame	900-1050	36-42	CBD-M	75567	13.0
	Large Plough Frame	1200-1500	48-60	CBD-L	75568	18.0
	Extra Large Plough Frame	1800-2100	72-84	CBD-XL	75569	22.5
2	Mounting Bracket Kit (1 ea.)	All	All	DB-MD	74325	3.8
3	Threaded Bolt	All	All	BD-TB	61171	3.0
4	Small Plough Blade Kit*	450-750	18-30	DBK-S	76446	2.0
	Medium Plough Blade Kit*	900-1050	36-42	DBK-M	76447	3.0
	Large Plough Blade Kit*	1200-1500	48-60	DBK-L	76448	4.0
	Extra Large Plough Blade Kit*	1800-2100	72-84	DBK-XL	76449	5.0
5	Small Plough Face Plate	450-750	18-30	DPFP-S	A0001	1.1
	Medium Plough Face Plate	900-1050	36-42	DPFP-M	A0002	1.7
	Large Plough Face Plate	1200-1500	48-60	DPFP-L	A2152	2.2
	Extra Large Plough Face Plate	1800-2100	72-84	DPFP-XL	A1705	2.7

*Kit includes blades and replacement blade bolts.

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

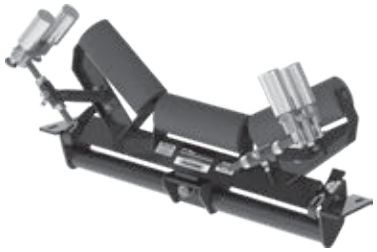
EZ Slider/Impact Beds

- Adjusting troughing angles for easy installation and adjustability
- Long-wearing UHMW for sealing the load zone
- Offered in both Light & Medium duty designs to affordably fit your 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 or 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.

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