V-Plow

Installation, Operation and Maintenance Manual
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 V-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:

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

Visit [www.flexco.com](http://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 V-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 V-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**

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

**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.
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 top side and return side belts (10”/ 250mm)
Before Installation: Ideally the V-Plow should be positioned in a flat area on the inside of the belt close to the tail pulley. For optimum cleaning performance, the nose of the plow should be located about 6" (150mm) behind a return roller.

STEP 1. Measure the distance between the top side and return belts. A minimum of 10" (250mm) is required (Fig. 1). Place the V-Plow on the belt, positioned as specified above, to check for any clearance or obstruction problems.

STEP 2. Position the mounting brackets in either a horizontal or vertical position. The centerline of the pole must be within a range of 8" to 14" (200mm to 350mm) above the return belt to insure proper performance (Fig. 2a). IMPORTANT: The main linkage arms must be operated in a range between a minimum of 10° and a maximum of 45° (Fig. 2b). This allows the V-Plow to float on the belt.

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

Tools Needed:
- 9/16" (14mm) wrench
- 1/2" (13mm) wrench
- 3/4" (19mm) wrench
- 15/16" (24mm) wrench
Section 4 – Installation Instructions (cont.)

STEP 3. Mark and drill holes for the mounting brackets.
Attach with 1/2” (13mm) bolts and nuts provided (Fig. 3). Welding is optional.

STEP 4. Center the V-Plow on the belt.
Loosen the jam nuts and lock bolts on both stop collars on the pole. Slide the plow in the direction needed to center it on the belt. Once located, slide stop collars up to main linkage arms and tighten the lock bolts and jam nuts (Fig. 4). NOTE: Do not push stop collars too tightly against the main linkage assemblies so that it restricts easy movement of the linkage.

STEP 5. Attach the adjuster to the center sleeve.
Remove the nut and bolt from the center sleeve, insert the end of the adjuster between the brackets, and reinstall the nut and bolt (Fig. 5).
IMPORTANT: Tighten only until snug; the adjuster should move freely.

STEP 6. Position the V-Plow to the belt.
While applying downward pressure to the nose of the plow, turn the adjuster so that the nose just begins to lift off the surface of the belt (about .010”/.25 mm). Tighten the adjuster jam nut (Fig. 6).

STEP 7. Test run and inspect.
Run the belt and check that the V-Plow runs smoothly and has an effective cleaning action. If any vibration occurs, turn the adjuster to raise the nose slightly.
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.
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 V-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 Instructions

**Tools Needed:**
- 9/16” (14mm) wrench
- 1/2” (13mm) wrench
- 3/4” (19mm) wrench
- 15/16” (24mm) wrench

1. **Loosen adjuster jam nut.** After adjuster jam nut is loose the adjuster can be turned to provide more clearance for the new blade (Fig 1.)

2. **Remove worn blade.** Unscrew all bolts securing the worn blade to plow main frame. Remove the blade and clean off any remaining material on plow frame (Fig 2.)

3. **Install new blade.** Use current bolts to secure new blade to main frame.

4. **Position the V-Plow to the belt.** While applying downward pressure to the nose of the plow, turn the adjuster so that the nose just begins to lift off the surface of the belt (about .010”/.25 mm). Tighten the adjuster jam nut (Fig. 3).

5. **Test run and inspect.** Run the belt and check that the V-Plow runs smoothly and has an effective cleaning action. If any vibration occurs, turn the adjuster to raise the nose slightly.
6.5 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: ________________________________________________
6.6 Plow Maintenance Checklist

---

Plow: ___________________________ Serial Number: ___________________________

**Beltline Information:**

- Beltline Number: ___________________________
- Belt Condition: ___________________________

- Belt Width: 18" (450mm) 24" (600mm) 30" (750mm) 36" (900mm) 42" (1050mm) 48" (1200mm) 54" (1350mm) 60" (1500mm) 72" (1800mm) 84" (2100mm) 96" (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

**Frame Condition:**

- [ ] Good  [ ] Bent  [ ] Worn

**Lagging:**

- [ ] Slide lag  [ ] Ceramic  [ ] Rubber  [ ] Other  [ ] None

- Condition of lagging: [ ] Good  [ ] Bad  [ ] Other

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**Plow's Overall Performance:**

- [ ] Rate the following 1 - 5, 1=very poor - 5= very good

- Appearance: ________
- Comments: ___________________________

- Location: ________
- Comments: ___________________________

- Maintenance: ________
- Comments: ___________________________

- Performance: ________
- Comments: ___________________________

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**Other Comments:** __________________________

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# Section 7 - Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor cleaning performance</td>
<td>Plow not making proper contact with belt</td>
<td>1. Check location of plow to flat return roller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Check turnbuckle adjustment and check main linkage arm angles</td>
</tr>
<tr>
<td>Attaing proper float</td>
<td>Restriction in movement on linkage arms</td>
<td>Shaft/ stop collars may be too tight</td>
</tr>
<tr>
<td>Material getting through</td>
<td>Too much space between belt and blade</td>
<td>Check V-Plow nose for proper clearance between nose and belt. Check adjuster arm angles.</td>
</tr>
<tr>
<td></td>
<td>Mechanical splice damaging blade</td>
<td>Repair, skive, or replace splice</td>
</tr>
</tbody>
</table>
8.1 Specs and Guidelines

V-Plow

Specs and Guidelines

• Belt Splice .................................. Mechanically Fastened/Vulcanized
• Belt Speed .................................. 5M/sec (1000 FPM) for V-Plow
• Belt Direction ............................. One Way

V-Plow Belt Width Specifications

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BELT WIDTH (Min-Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
</tr>
<tr>
<td>Extra Small</td>
<td>450-600</td>
</tr>
<tr>
<td>Small</td>
<td>750-900</td>
</tr>
<tr>
<td>Medium</td>
<td>1050-1200</td>
</tr>
<tr>
<td>Large</td>
<td>1350-1500</td>
</tr>
<tr>
<td>72&quot;</td>
<td>1800</td>
</tr>
<tr>
<td>84&quot;</td>
<td>2100</td>
</tr>
<tr>
<td>96&quot;</td>
<td>2400</td>
</tr>
</tbody>
</table>

Use next larger size for belt widths between ranges.

V-Plow Blade Specifications

<table>
<thead>
<tr>
<th>Material</th>
<th>UHMWPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durometer</td>
<td>67-D</td>
</tr>
<tr>
<td>Working Temperature</td>
<td></td>
</tr>
<tr>
<td>°C</td>
<td>-40° to 71°</td>
</tr>
<tr>
<td>°F</td>
<td>-40° to 160°</td>
</tr>
<tr>
<td>Grease &amp; Chemical Resistance</td>
<td>Excellent</td>
</tr>
<tr>
<td>Sticky Material Performance</td>
<td>Excellent</td>
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</table>
## Section 9 - Replacement Parts

### 9.1 Replacement Parts List

#### Replacement Parts - V-Plow

<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
<th>BELT WIDTH (Min-Max)</th>
<th>ORDERING NUMBER</th>
<th>ITEM CODE</th>
<th>WT. LBS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V-Plow Pole XS</td>
<td>450-600 18-24</td>
<td>VPXS</td>
<td>73400</td>
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<tr>
<td></td>
<td>V-Plow Pole S</td>
<td>750-900 30-36</td>
<td>VPS</td>
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<tr>
<td></td>
<td>V-Plow Pole M</td>
<td>1050-1200 42-48</td>
<td>VPM</td>
<td>73409</td>
<td>18.0</td>
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<tr>
<td></td>
<td>V-Plow Pole L</td>
<td>1350-1500 54-60</td>
<td>VPL</td>
<td>73410</td>
<td>21.0</td>
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<tr>
<td></td>
<td>V-Plow Pole 72</td>
<td>1800 72</td>
<td>VP72</td>
<td>74395</td>
<td>24.0</td>
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<tr>
<td></td>
<td>V-Plow Pole 84</td>
<td>2100 84</td>
<td>VP84</td>
<td>74396</td>
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<td>V-Plow Pole 96</td>
<td>2400 96</td>
<td>VP96</td>
<td>74397</td>
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<td>2</td>
<td>V-Plow Mainframe XS</td>
<td>450-600 18-24</td>
<td>VMFXS</td>
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<td>V-Plow Mainframe M</td>
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<td>VMFM</td>
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<td>VMF72</td>
<td>74398</td>
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<td>V-Plow Mainframe 84</td>
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<td>VMF84</td>
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<td>V-Plow Mainframe 96</td>
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<td>VMF96</td>
<td>74440</td>
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<tr>
<td>3</td>
<td>VP Main Linkage Kit*</td>
<td>(1 ea.)</td>
<td>VMLK</td>
<td>74982</td>
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<td>4</td>
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<td>VCS</td>
<td>73533</td>
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<td>5</td>
<td>V-Plow Adjuster Kit*</td>
<td>VAK</td>
<td>76416</td>
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<td></td>
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<tr>
<td>6</td>
<td>VP Stop Collar*</td>
<td>(1 ea.)</td>
<td>VSC</td>
<td>74983</td>
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<tr>
<td>7</td>
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<td>VMBK</td>
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### REPLACEMENT BLADE KITS**

<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
<th>BELT WIDTH (Min-Max)</th>
<th>ORDERING NUMBER</th>
<th>ITEM CODE</th>
<th>WT. LBS.</th>
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<tr>
<td>8</td>
<td>Replacement Blade Kit XS</td>
<td>450-600 18-24</td>
<td>VBK-XS</td>
<td>73190</td>
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<td>VBK-84</td>
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<td>VBK-96</td>
<td>74459</td>
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</table>

*Hardware included

**Kit includes blades and replacement blade bolts.

Lead time: 1 working day

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Shaded items are made to order. Lead time: 10 working days
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

**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

**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 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.