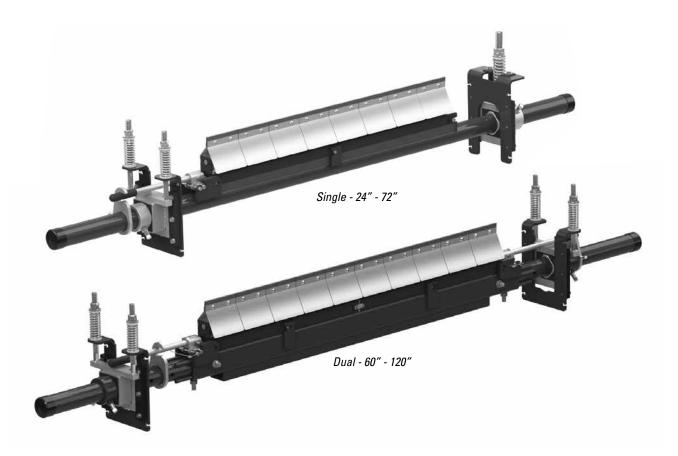
# MHS Enhanced Service Advantage Cartridge HD Secondary Belt Cleaner

## Installation, Operation and Maintenance Manual





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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### 1.1 General Introduction

We at Flexco are very pleased that you have selected an MHS ESAC HD Secondary Cleaner 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 contact your field representative or our Customer Service Department:

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

#### 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 belt cleaner and other conveyor components

### **1.3 Service Option**

The MHS ESAC HD Secondary Cleaner 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 Representative.

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Before installing and operating the MHS ESAC HD Secondary Cleaner, 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

### **A** 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 belt cleaner 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 conveyor belt cleaners. 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 belt cleaner is an in-running nip hazard. Never touch or prod an operating cleaner. Cleaner hazards cause instantaneous amputation and entrapment.



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



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



### 3.1 Checklist

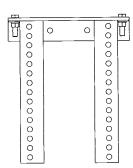
- Check that the cleaner size is correct for the beltline width
- Check the belt cleaner carton and make sure all the parts are included
- Review the "Tools Needed" list on the top of the installation instructions
- Check the conveyor site:
  - Will the cleaner be installed on a chute
  - Is the install on an open head pulley requiring mounting structure (see 3.2 Optional Installation Accessories)

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### **Section 3 - Pre-installation Checks and Options**

### 3.2 Optional Installation Accessories

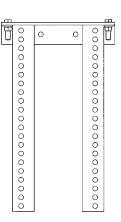
Versatile, adjustable brackets that can be mounted on the conveyor structure so the MHS HD Secondary Cleaner can be quickly and easily bolted into place. Pole extenders are also available for wide, non-standard conveyor structures.



#### 76071

#### Standard Mounting Bracket Kit

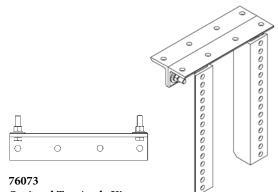
- For most secondary cleaner installs.
- 13" (325mm) W x 15 1/2" (388mm) L
- Includes 2 brackets



#### 76072

#### Long Mounting Bracket Kit

- For installations that require extra length legs.
- 13" (325mm) W x 21 1/2" (538mm) L
- Includes 2 brackets



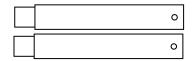
### **Optional Top Angle Kit**

- Used with both standard and long mounting bracket kits for additional mounting options.
- 13" (325mm) L
- Includes 2 brackets

#### 76024

#### Pole Extender Kit

- Provides 30" (750mm) of extended pole length
- Includes 2 pole extenders



Optional Mounting Kits (includes 2 brackets/bars)			
Ordering      Item      Wt.        Description      Number      Code      Lbs.			
Standard Mounting Bracket Kit *	SSTSMB	76071	34.3
Long Mounting Bracket Kit *	SSTLMB	76072	43.5
Optional Top Angle Kit *	SSTOTA	76073	10.5
Pole Extender Kit	MAPEK	76024	21.9

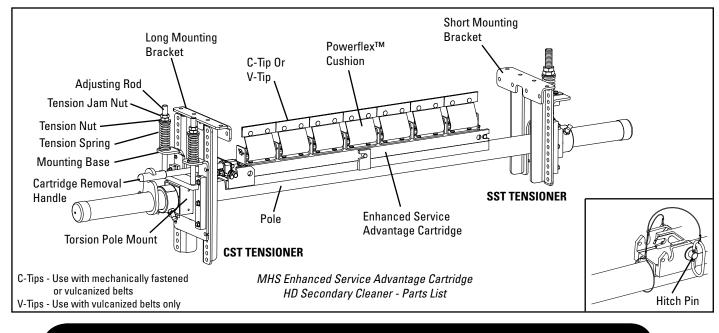
\*Hardware Included

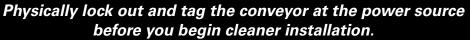
Lead time: 1 working day

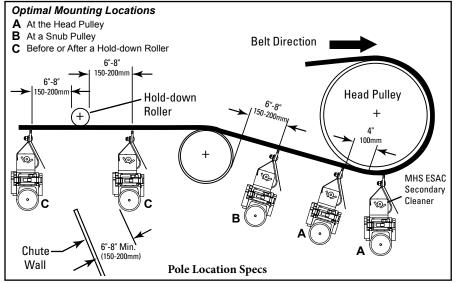


### **Section 4.1 - Installation Instructions - Single Cartridge**

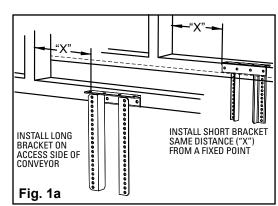
### MHS Enhanced Service Advantage Cartridge HD Secondary Belt Cleaner

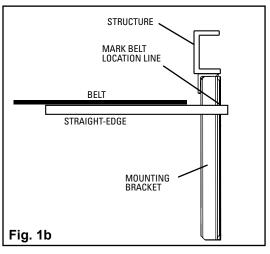




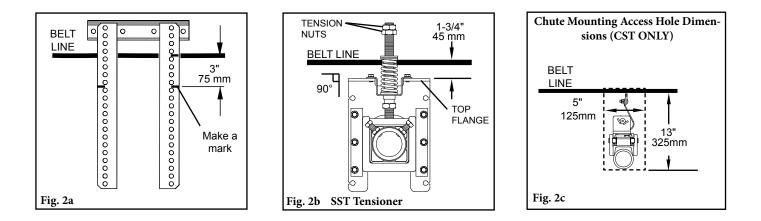


- 1a. Install the mounting brackets. Position the long mounting bracket on the structure on the side of the conveyor from which the cleaner will be installed and serviced. With the long bracket installed, take a measurement "X" from a fixed point on the structure to the mounting bracket and transfer to the opposite side of the structure; mount short mounting bracket in this location (Fig. 1a).
- **1b. Transfer the belt location line to the mounting bracket.** Using a straight-edge pushed up to the bottom of the belt, mark the mounting bracket (Fig. 1b). Repeat on opposite side.

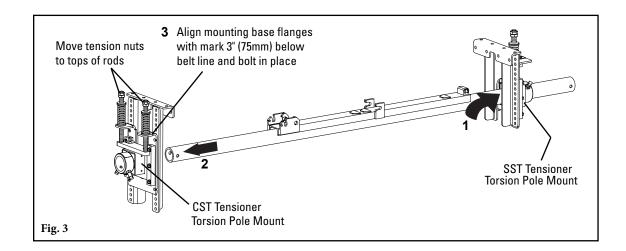




- 2. Install the SST mounting base. On the cartridge access (service) side of the conveyor, make a mark on the long bracket 3" (75mm) below the belt line (Fig. 2a); this will be needed in Step 3. On the opposite side, bolt the SST tensioner mounting base into position so the top flange of the base is 1-3/4" (45mm) below the belt line (Fig. 2b). Adjust the tension nut to the top of the adjusting rod.
- **NOTE:** For chute mounting, a belt location line must be drawn on the chute wall so the mounting bases can be aligned with the belt. Cut an access hole as shown for the CST tensioner (Fig. 2c). Also cut an access hole as needed for the SST tensioner.



**3. Install the pole.** Remove the cartridge from the pole. Slide the pole into the SST torsion pole mount as far as needed. Then locate the other end into the CST tensioner torsion pole mount and attach the mounting base to the long bracket, aligning the flanges with the previously marked position (Fig. 3). Adjust tension nuts to the tops of the adjusting rods.





### Section 4.1 - Installation Instructions - Single Cartridge

#### 4. Different Cartridge Installation Methods.

Option B: Handle stored inside pole.

into the already installed knuckle.

handle and place into open pole end.

#### Option A: Handle always on cartridge.

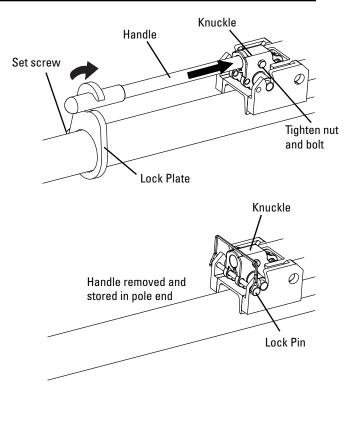
- 1. Slide the handle into the already installed knuckle, then tighten with supplied bolt/nut hardware.
- 2. Slide the cartridge onto the pole and lock down the knuckle onto the pole.

1. Set the cartridge onto the pole, then slide the handle

2. Lock down the knuckle onto the pole, then remove

3. Using the lock pins provided, lock the knuckle and

**3.** Slide the lock plate onto the pole, over the handle, then lock with the set screw.

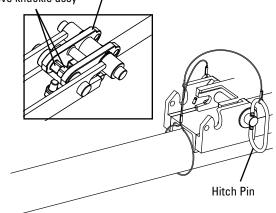


Use 2 wrenches to loosen pivot pins, then Knuckle assy remove knuckle assy /

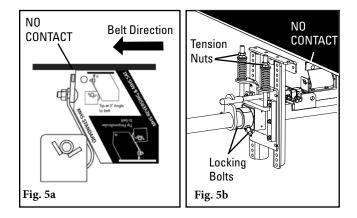
#### Option C: Hitch pin only.

the handle in place.

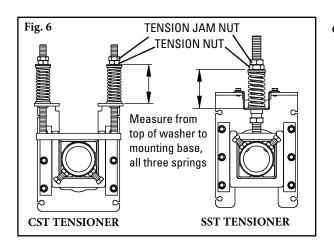
- To remove the knuckle assembly from the cartridge, flip cartridge upside down and use two 1/2" (13mm) wrenches to unlock knuckle pivot pins, then remove knuckle assembly.
- 2. Set the cartridge onto the pole.
- **3.** Use rubber mallet (to prevent damage to the cartridge) to lock into place.
- 4. Using the hitch pin provided, lock the cartridge in place.



5. Set the blade angle. Center the pole/blades on the belt. Rotate the pole until the tips align with the white "MHS Standard" side of the tip setup gauge provided (Fig. 5a). Tighten the two locking bolts on each torsion pole mount to lock the pole in place (Fig. 5b). There should be no blade-to-belt contact while locking the pole in the correct position. If contact occurs, double check the dimension from Step 1.



### Section 4.1 - Installation Instructions - Single Cartridge

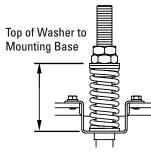


#### **Spring Length Chart**

for **SST** Spring Tensioner

BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK Spring
24"	3 1/8"	3 7/8"	N/A
30"	2 7/8"	3 3/4"	N/A
36"	N/A	3 3/4"	3 7/8"
42"	N/A	3 5/8"	3 3/4"
48"	N/A	3 1/2"	3 5/8"
54"	N/A	3 3/8"	3 5/8"
60"	N/A	3 1/4"	3 1/2"
72"	N/A	N/A	3 3/8"

Shading indicates preferred spring option

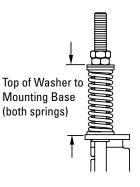


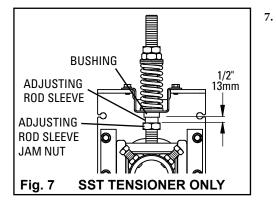
6. Set the blade tension. Loosen the top tension jam nuts on both sides. Tighten the tension nuts until the correct spring compression is reached (Fig. 6). Spring compression is determined by belt width. See chart below for the correct spring length for your belt width. Tighten top tension jam nuts.

#### **Spring Length Chart**

for **CST** Spring Tensioner

		1 0			
	BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK Spring	GOLD SPRING
	24"	3 1/8"	3 7/8"	N/A	N/A
	30"	2 7/8"	3 3/4"	N/A	N/A
	36"	N/A	3 3/4"	3 7/8"	N/A
	42"	N/A	3 5/8"	3 3/4"	N/A
_	48"	N/A	3 1/2"	3 5/8"	N/A
-	54"	N/A	3 3/8"	3 5/8"	N/A
	60"	N/A	3 1/4"	3 1/2"	4″
	72"	N/A	N/A	3 3/8"	4″
	84"	N/A	N/A	3 1/8"	3 7/8"
	96"	N/A	N/A	N/A	3 7/8"
	120"	N/A	N/A	N/A	3 5/8"





**Set adjusting rod sleeve (SST Tensioner only).** After setting the blade tension, screw the adjusting rod sleeve into the UHMW bushing until 1/2" (13mm) is showing (Fig. 7). Tighten the adjusting rod sleeve jam nut.

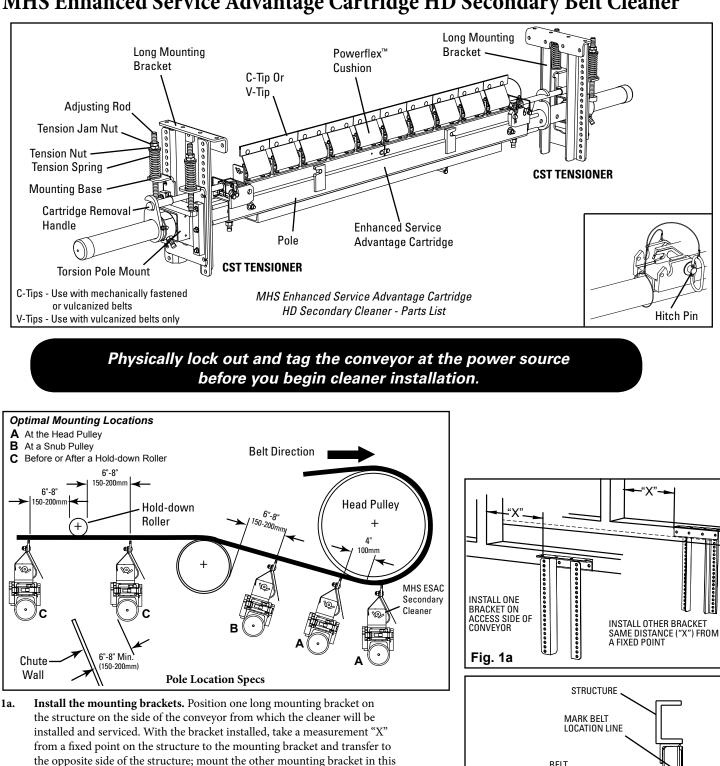
- 8. IMPORTANT: Apply the Spring Tension Labels to the conveyor structure for future blade retensioning.
- 9. Test run the cleaner and inspect the cleaning performance. If vibration occurs or more cleaning efficiency is desired, increase the blade tension by making 1/8" (3mm) compression adjustments on the tension springs.

#### SEE PAGE 16 FOR CARTRIDGE REPLACEMENT INSTRUCTIONS.

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### **Section 4.2 - Installation Instructions - Dual Cartridge**

### MHS Enhanced Service Advantage Cartridge HD Secondary Belt Cleaner



BFIT

STRAIGHT-EDGE

Fig. 1b

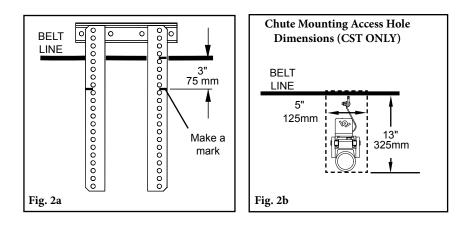
MOUNTING BRACKET

1b. Transfer the belt location line to the mounting bracket. Using a straightedge pushed up to the bottom of the belt, mark the mounting bracket (Fig. 1b). Repeat on opposite side.

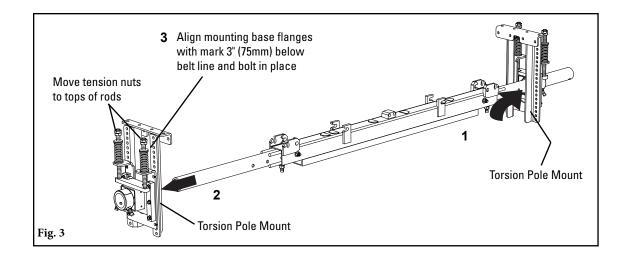


location (Fig. 1a).

- 2. Install one CST mounting base. On both sides of the conveyor, make a mark on the long brackets 3" (75mm) below the belt line (Fig. 2a); this will be needed in Step 3.
- **NOTE:** For chute mounting, a belt location line must be drawn on the chute wall so the mounting bases can be aligned with the belt. Cut an access hole as shown for the CST tensioner (Fig. 2b).



**3. Install the pole.** Remove the cartridges from the pole. Slide the pole into one CST torsion pole mount as far as needed. Then locate the other end into the other CST tensioner torsion pole mount and attach the mounting base to the long bracket, aligning the flanges with the previously marked position (Fig. 3). Adjust tension nuts to the tops of the adjusting rods.





### Section 4.2 - Installation Instructions - Dual Cartridge

#### 4. Different Cartridge Installation Methods.

Option B: Handle stored inside pole.

#### Option A: Handle always on cartridge.

- 1. Slide the handle into the already installed knuckle, then tighten with supplied bolt/nut hardware.
- **2.** Slide the cartridge onto the pole and lock down the knuckle onto the pole.
- **3.** Slide the lock plate onto the pole, over the handle, then lock with the set screw.

1. Set the cartridge onto the pole, then slide the handle into the already

2. Lock down the knuckle onto the pole, then remove handle and place

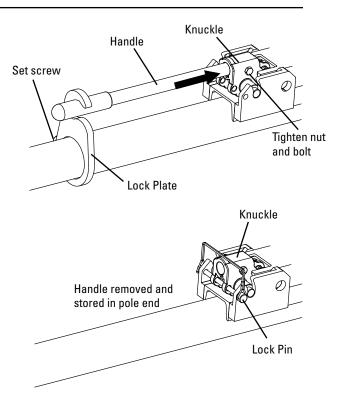
3. Using the lock pins provided, lock the knuckle and the handle in place.

4. Repeat for other side.

installed knuckle.

into open pole end.

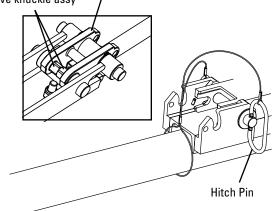
4. Repeat for other side.



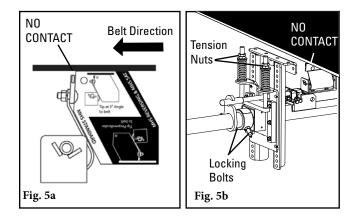
Use 2 wrenches to loosen pivot pins, then Knuckle assy remove knuckle assy /

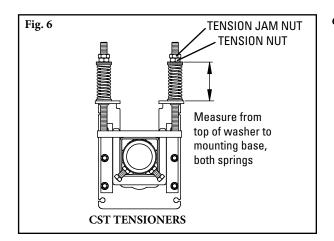
#### Option C: Hitch pin only.

- 1. To remove the knuckle assembly from the cartridge, flip cartridge upside down and use two 1/2" (13mm) wrenches to unlock knuckle pivot pins, then remove knuckle assy.
- 2. Set the cartridge onto the pole.
- 3. Use rubber mallet (to prevent damage to the cartridge) to lock into place.
- 4. Using the hitch pin provided, lock the cartridge in place.
- 5. Repeat for other side.



5. Set the blade angle. Center the pole/blades on the belt. Rotate the pole until the tips align with the white "MHS Standard" side of the tip setup gauge provided (Fig. 5a). Tighten the two locking bolts on each torsion pole mount to lock the pole in place (Fig. 5b). There should be no blade-to-belt contact while locking the pole in the correct position. If contact occurs, double check the dimension from Step 1.

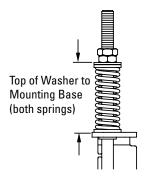




6. Set the blade tension. Loosen the top tension jam nuts on both sides. Tighten the tension nuts until the correct spring compression is reached (Fig. 6). Spring compression is determined by belt width. See chart below for the correct spring length for your belt width. Tighten top tension jam nuts.

#### Spring Length Chart for CST Spring Tensioner

BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK Spring	GOLD Spring
24"	3 1/8"	3 7/8"	N/A	N/A
30"	2 7/8"	3 3/4"	N/A	N/A
36"	N/A	3 3/4"	3 7/8"	N/A
42"	N/A	3 5/8"	3 3/4"	N/A
48"	N/A	3 1/2"	3 5/8"	N/A
54"	N/A	3 3/8"	3 5/8"	N/A
60"	N/A	3 1/4"	3 1/2"	4″
72"	N/A	N/A	3 3/8"	4″
84"	N/A	N/A	3 1/8"	3 7/8″
96"	N/A	N/A	N/A	3 7/8″
120"	N/A	N/A	N/A	3 5/8"



- 7. IMPORTANT: Apply the Spring Tension Labels to the conveyor structure for future blade retensioning.
- 8. Test run the cleaner and inspect the cleaning performance. If vibration occurs or more cleaning efficiency is desired, increase the blade tension by making 1/8" (3mm) compression adjustments on the tension springs.

SEE NEXT PAGE FOR CARTRIDGE REPLACEMENT INSTRUCTIONS.

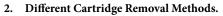


### **Section 4.3 - Cartridge Replacement Instructions**

### MHS Enhanced Service Advantage Cartridge HD Secondary Belt Cleaner

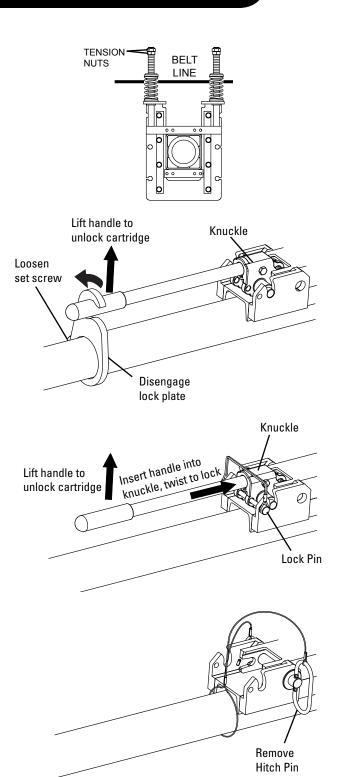
Physically lock out and tag the conveyor at the power source before you begin cleaner installation.

1. Release tension on the cleaner. Loosen both the tension jam nut and tension nut on all adjusting rods until the nuts are at the tops of the adjusting rods (Fig. 1).



#### Option A: Handle always on cartridge.

- **1.** Loosen the lock plate set screw and disengage lock plate from handle.
- **2.** Lift the handle to unlock the knuckle and cartridge, then pull cartridge out.
- 3. If using dual cartridge cleaner, repeat for other side.



#### Option B: Handle stored inside pole.

- 1. Remove lock pins holding handle and knuckle in place.
- 2. Slide the handle into the knuckle and twist to lock.
- **3.** Lift the handle to unlock the knuckle and cartridge, then pull cartridge out.
- 4. If using dual cartridge cleaner, repeat for other side.

#### Option C: Hitch pin only.

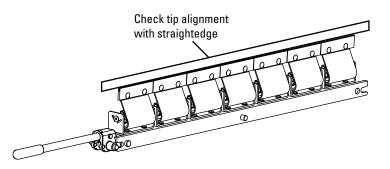
- 1. Remove the hitch pin, then pull the cartridge out. Please note this method may require full access to the cleaner to loosen the cartridge.
- 2. If using dual cartridge cleaner, repeat for other side.

3. Clean off pole. Remove any debris that has built up on the pole.

4. **Replace the worn tips. NOTE:** If using a dual cartridge cleaner, please use the provided Cartridge Tip Alignment Tool to ensure the tips on both cartridges are located at the same height. It is recommended to use a second cartridge with new tips and cushions already installed for a quick change-out. However, new cleaner tips can be installed on the pulled cartridge on-site if needed.

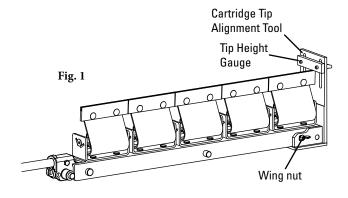
#### Single Cartridge:

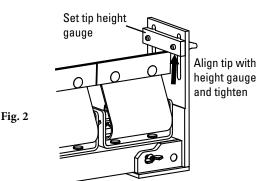
- 1. Remove all tips with hardware from the used cartridge.
- 2. Install all new tips and hardware without fully tightening.
- 3. Tighten one of the tips on one end of the cartridge.
- 4. Visually align all others while tightening remaining tips, ensuring a flat profile across all tips. Check with a straightedge. When finished, all tips should move freely without catching on the next tip and have no gaps larger than .030" (approximate thickness of a credit card).



#### **Dual Cartridge:**

- 1. Remove all tips with hardware from the used cartridges.
- 2. Install all new tips and hardware without fully tightening.
- **3.** On one cartridge, place the Cartridge Tip Alignment Tool on the end with the notch and alignment holes. Using those alignment holes, tighten the tool to the cartridge with wing nut (Fig. 1).
- **4.** Set the tip height gauge on the Cartridge Tip Alignment Tool so that the loosely installed tip can push up into the corner of the tool (Fig. 2).
- **5.** Tighten the first tip while holding it tight to the Cartridge Tip Alignment Tool (Fig. 2).
- 6. Visually align all others while tightening remaining tips, ensuring a flat profile across all tips. Check with a straightedge. When finished, all tips should move freely without catching on the next tip and have no gaps larger than .030" (approximate thickness of a credit card).
- 7. Repeat Steps 3, 5 and 6 for second cartridge, making sure to keep the tip height gauge locked in place so that both cartridges will be aligned when assembled to the pole.





DO NOT RESET TIP HEIGHT GAUGE WHEN SWITCHING TO SECOND CARTRIDGE



### Section 4.3 - Cartridge Replacement Instructions

#### Knuckle Handle 5. Insert the reconditioned or replacement cartridge. Option A: Handle always on cartridge. 1. Slide the cartridge onto the pole and lock down the knuckle onto the pole. 2. Slide the lock plate onto the pole, over the handle, then lock with the set screw. 3. If using dual cartridge, repeat for other side. Knuckle Lock Plate Option B: Handle stored inside pole. Set the cartridge onto the pole, then slide the handle into the already installed knuckle. Handle removed and Lock down the knuckle onto the pole, then remove handle and place into open stored in pole end pole end. Using the lock pins provided, lock the knuckle and the handle in place. If using dual cartridge, repeat for other side. Lock Pin **Option C: Hitch pin only.** Knuckle assembly 1. Set the cartridge onto the pole. removed Use hammer and buffer material (to prevent damage to the cartridge) to lock into place. 3. Using the hitch pin provided, lock the cartridge in place. 4. If using dual cartridge, repeat for other side. **Hitch Pin**

Retension the cleaner tips to the belt. Turn the tension nuts until the correct spring length is reached for your blade width. See 6. Spring Length Charts at right (or on the cleaner).

#### **Spring Length Chart**

1.

2.

3.

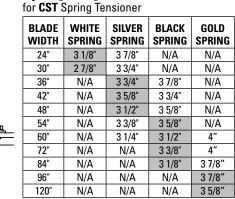
4.

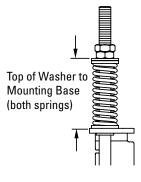
2.

for <b>SST</b> S	for <b>SST</b> Spring Tensioner		
BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK SPRING
24"	3 1/8"	3 7/8"	N/A
30"	2 7/8"	3 3/4"	N/A
36"	N/A	3 3/4"	3 7/8"
42"	N/A	3 5/8"	3 3/4"
48"	N/A	3 1/2"	3 5/8"
54"	N/A	3 3/8"	3 5/8"
60"	N/A	3 1/4"	3 1/2"
72"	N/A	N/A	3 3/8"
Shading indicates preferred spring option			

Top of Washer to Mounting Base

#### Spring Length Chart

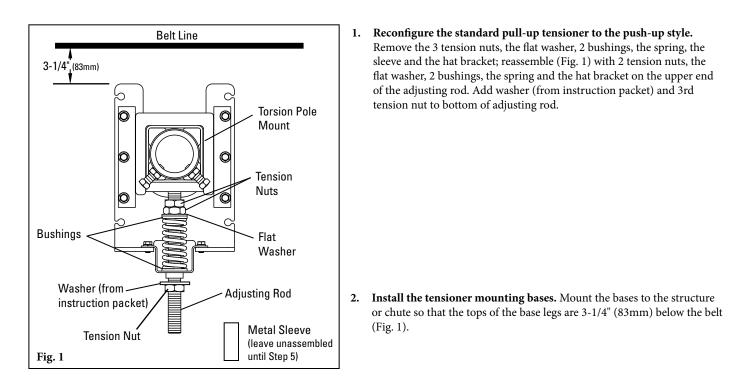




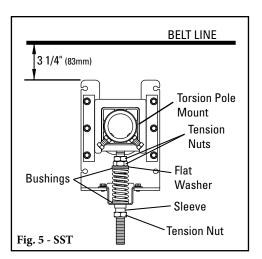
7. Test run the cleaner and inspect the cleaning performance. If vibration occurs or more cleaning efficiency is desired, increase the blade tension by making 1/2" (3mm) compression adjustments on the tension springs.

### **Section 4.4 - Push-up Tensioning Instructions**

### For SST Tensioner/Single-Side Access Only



- 3. Install the cleaner pole and set the blade angle. Follow the installation steps from the cleaner instructions on Page 8. Note: be sure the lock bolts on the torsion pole mount have been securely tightened to lock the pole in place before moving to Step 4.
- 4. Set the blade tension. Remove the bottom tension nut and washer from the adjusting rod. Turn the 2 upper tension nuts until the spring is compressed to the length shown on the Spring Length Chart at right. Tighten the 2 tension nuts together to prevent loosening.



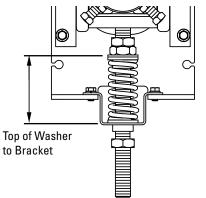
### **Spring Length Chart**

for <b>SST</b> Spring Tensioner	
---------------------------------	--

BLADE WIDTH	WHITE Spring	SILVER SPRING	BLACK Spring
24"	3 1/8"	3 7/8"	N/A
30"	2 7/8"	3 3/4"	N/A
36"	N/A	3 3/4"	3 7/8"
42"	N/A	3 5/8"	3 3/4"
48"	N/A	3 1/2"	3 5/8"
54"	N/A	3 3/8"	3 5/8"
60"	N/A	3 1/4"	3 1/2"
72"	N/A	N/A	3 3/8"

Shading indicates preferred spring option

the sleeve in place (Fig. 5).



5. **Replace the sleeve.** Position the sleeve over the adjusting rod and turn it until it is in the middle of the bushing. Replace the bottom tension nut and tighten until it locks



### 5.1 Pre-Op Checklist

- Recheck that all fasteners are tightened properly
- Add pole caps
- Apply all supplied labels to the cleaner
- 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
- Check the tensioner spring for recommended length (proper tensioning)
- Make adjustments as necessary

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

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

All safety procedures for inspection of equipment (stationary or operating) must be observed. The MHS ESAC HD Belt Cleaner operates at the discharge end of the conveyor 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 cleaner 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 cleaner and belt should look for:

- If spring length is the correct length for optimal tensioning
- If belt looks clean or if there are areas that are dirty
- If blade is worn out and needs to be replaced
- If there is damage to the blade or other cleaner components
- If fugitive material is built up on cleaner or in the transfer area
- If there is cover damage to the belt
- If there is vibration or bouncing of the cleaner on the belt
- If a snub pulley is used, a check should be made for material buildup on the pulley
- Significant signs of carryback

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 cleaner to perform the following tasks:

- Clean material buildup off of the cleaner blade and pole
- Closely inspect the blade for wear and any damage. Replace if needed.
- Ensure full blade to belt contact
- Inspect the cleaner pole for damage
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any worn or damaged components
- Check the tension of the cleaner blade to the belt. Adjust the tension if necessary using the chart on the cleaner or the ones on Page 11.
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing properly



### Section 6 - Maintenance

## 6.4 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:		

### 6.5 Cleaner Maintenance Checklist

Belt Cleaner:	Serial Number:
Beltline Information: Beltline Number:	Belt Condition:
Belt Width: 24" 30" 36" (600mm) (750mm) (900m	42"    48"    54"    60"    72"    84"    96"    120"      nm)    (1050mm)    (1200mm)    (1350mm)    (1500mm)    (1800mm)    (2100mm)    (2400mm)    (3000mm)
Belt Speed: fpm	Belt Thickness:
Belt Splice Cond	ition of Splice Number of splices SkivedUnskived
Material conveyed	
Days per week run	Hours per day run
Blade Life: Date blades installed:	Date blades inspected: Estimated blade life:
Are blades making complete contact w	vith belt? Yes No
Blade wear: LE	FT MIDDLE RIGHT
Blade condition: Good	Grooved Smiled Not contacting belt Damaged
Measurement of spring: Requir	ed Currently
Was Cleaner Adjusted:	Yes No
Pole 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:	

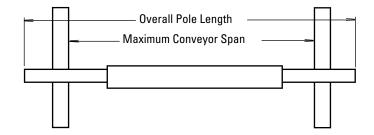


### Section 7 - Troubleshooting

Problem	Possible Cause	Possible Solutions	
	Cleaner secure bolts not set	Ensure all locking nuts are tight (Loctite)	
	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge)	
Vibration	Belt tension too high	Ensure cleaner can conform to belt, or replace with alternate Flexco secondary cleaner	
	Belt flap	Introduce hold-down roller to flatten belt	
	Cleaner over-tensioned	Ensure cleaner is correctly tensioned	
	Cleaner under-tensioned	Ensure cleaner is correctly tensioned	
	Cleaner not set up correctly	Ensure cleaner set up properly (1°-3° into belt)	
Material buildup on cleaner	Buildup on chute	Ensure cleaner is not located too close to back of chute, allowing buildup	
	Cleaner being overburdened	Introduce Flexco precleaner	
	Excessive sticky material	Frequently clean unit of buildup	
	Cleaner over-tensioned	Ensure cleaner is correctly tensioned	
	Cleaner blade damage	Check blade for wear, damage and chips, replace where necessary	
Damaged belt cover	Attack angle not correct	Ensure cleaner set up properly (check tip angle with gauge)	
	Material buildup in chute	Frequently clean unit of buildup	
	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge)	
Cleaner not conforming to belt	Belt tension too high	Ensure cleaner can conform to belt (introduce hold-down roller), or replace with alternate Flexco secondary cleaner	
	Belt flap	Introduce hold-down roller to flatten belt	
	Cleaner cannot conform	Ensure cleaner can conform to belt (introduce hold-down roller), or replace with alternate Flexco secondary cleaner	
	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge)	
	Cleaner tension too low	Ensure cleaner is correctly tensioned	
	Cleaner blades worn/damaged	Check blades for wear, damage and chips, replace where necessary	
Material passing cleaner	Cleaner being overburdened	Introduce Flexco precleaner	
	Belt flap	Introduce hold-down roller to flatten belt	
	Belt worn or grooved	Introduce water spray pole	
	Cleaner cannot conform	Ensure cleaner can conform to belt (introduce hold-down roller), or replace with alternate Flexco secondary cleaner	
	Incorrect cleaner blade selection	Change blade type to accomodate fastener style (C-Tip or V-Tip)	
Damage to mechanical fastener	Belt not skived correctly	Spot and redo splice correctly, lowering the profile flush or below below surface	
	Blade angle incorrect	Reset with gauge	
Missing material in belt	Cupped Belt	Install hold-down roller and reset blade angle with gauge	
center only	Cleaner blade worn/damaged	Check blade for wear, damage and chips, replace where necessary	
Missing material on outer	Cupped Belt	Install hold-down roller and reset blade angle with gauge	
edges only	Cleaner blade worn/damaged	Check blade for wear, damage and chips, replace where necessary	

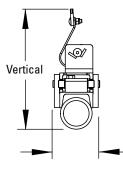
### 8.1 Specs and Guidelines

Pole Length Specifications*									
VERSION	CLEANER SIZE			BLADE WIDTH		DLE Ngth	MAXIMUM Conveyor Span		
	in.	mm	in.	mm	in.	mm	in.	mm	
	24	600	24	600	78	1950	66	1650	
	30	750	30	750	84	2100	72	1800	
	36	900	36	900	90	2250	78	1950	
Cinala	42	1050	42	1050	96	2400	84	2100	
Single	48	1200	48	1200	102	2550	90	2250	
	54	1350	54	1350	108	2700	96	2400	
	60	1500	60	1500	114	2850	102	2550	
	72	1800	72	1800	126	3150	114	2850	
	60	1500	60	1500	120	3000	108	2700	
	72	1800	72	1800	132	3300	120	3000	
Dual	84	2100	84	2100	144	3600	132	3300	
	96	2400	96	2400	156	3900	144	3600	
<u> </u>	120	3000	120	3000	180	4500	168	4200	



\*For special extra long pole length requirements a Pole Extender Kit (#76024) is available that provides 30" (750mm) of extended pole length. Pole Diameter - 2-7/8" (73mm)

Clearance Guidelines for Installation							
VERSION	HORIZ Cleaf Reol	RANCE	TICAL BANCE VIRED				
	in.	mm	in.	mm			
Single	4-1/2	114	11	279			
Dual	4-1/2	114	12-1/2	318			



Aluminum Content					
ALUMINUM	PERCENT				
ALLOY TYPE	Mg	Ti			
ALLOT THE	Magnesium	Titanium			
6061	1.0%	0.0%			

#### Spring Length Chart for SST Spring Tensioner

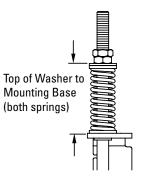
101 331 3	pring rei	ISIOIIEI		
BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK Spring	Top of Washer to
24"	3 1/8"	3 7/8"	N/A	Mounting Base
30"	2 7/8"	3 3/4"	N/A	iniouning Duoo
36"	N/A	3 3/4"	3 7/8"	↓ <u>↓</u>
42"	N/A	3 5/8"	3 3/4"	
48"	N/A	3 1/2"	3 5/8"	
54"	N/A	3 3/8"	3 5/8"	
60"	N/A	3 1/4"	3 1/2"	<u> </u>
72"	N/A	N/A	3 3/8"	e

Shading indicates preferred spring option

#### Spring Length Chart for CST Spring Tensioner

Horizontal

	spring re			
BLADE WIDTH	WHITE SPRING	SILVER SPRING	BLACK Spring	GOLD Spring
24"	3 1/8"	3 7/8"	N/A	N/A
30"	2 7/8"	3 3/4"	N/A	N/A
36"	N/A	3 3/4"	3 7/8"	N/A
42"	N/A	3 5/8"	3 3/4"	N/A
48"	N/A	3 1/2"	3 5/8"	N/A
54"	N/A	3 3/8"	3 5/8"	N/A
60"	N/A	3 1/4"	3 1/2"	4″
72"	N/A	N/A	3 3/8"	4″
84"	N/A	N/A	3 1/8"	3 7/8″
96"	N/A	N/A	N/A	3 7/8″
120"	N/A	N/A	N/A	3 5/8"



#### **Specifications:**

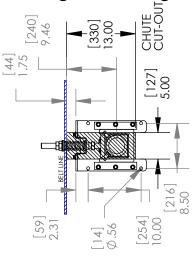
- Temperature Rating ......-30°F to 180°F (-35°C to 82°C)
- Blade Materials.....C-Tip: Impact Resistant Tungsten Carbide (works with mechanical fasteners)
  V-Tip: Long Life Tungsten Carbide (for vulcanized belts only)

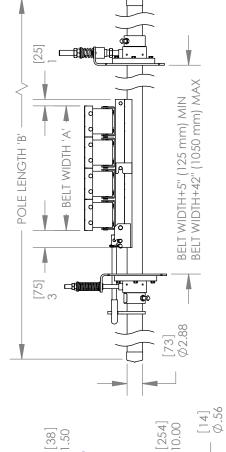
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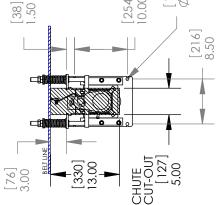


### 8.2 CAD Drawing - MHS ESAC with C-Tips - Single Cartridge

ЭE	ITEM CODE	77900	77901	77902	77903	77904	77905	77906	77907
SA CARTRIDGE	ORDER NUMBER	CART-24/600	CART-30/750	CART-36/900	CART-42/1050	CART-48/1200	CART-54/1350	CART-60/1500	CART-72/1800
POLE	CODE	77887	77888	77889	77890	77891	77892	77893	77894
sa cartridge pole	ORDER NUMBER	SACPL-24/600	SACPL-30/750	SACPL-36/900	SACPL-42/1050	SACPL-48/1200	SACPL-54/1350	SACPL-60/1500	SACPL-72/1800
EANER	ITEM CODE	77840	77841	77842	77843	77844	77845	77846	77847
SAC MHS C CLEANER	ORDER NUMBER	MHS-24-ESAC	MHS-30-ESAC	MHS-36-ESAC	MHS-42-ESAC	MHS-48-ESAC	MHS-54-ESAC	MHS-60-ESAC	MHS-72-ESAC
	# OF BLADES	4	5	9	7	8	6	10	12
SNC	POLE LENGTH 'B' (in) (mm)	1981	2133	2286	2438	2590	2743	2895	3200
SPECIFICATIONS	POLE LE (in)	78	84	90	96	102	108	114	126
SP	VIDTH 'A' (mm)	909	700	900	1050	1200	1350	1500	1800
	BELT V (in)	24	30	36	42	48	54	90	72







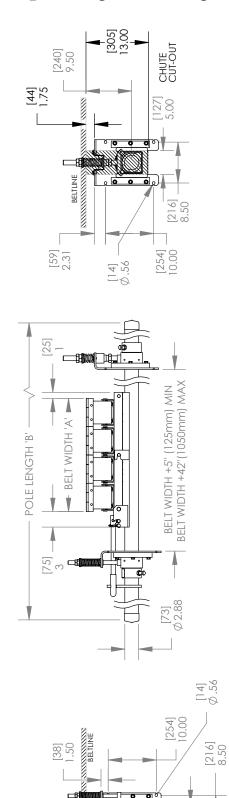
**Section 8 - Specs and CAD Drawings** 

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### 8.2 CAD Drawing - MHS ESAC with V-Tips - Single Cartridge

GE	ITEM CODE	77900	10677	77902	77903	77904	77905	90677	77907
sa cartridge	ORDER NUMBER	CART-24/600	CART-30/750	CART-36/900	CART-42/1050	CART-48/1200	CART-54/1350	CART-60/1500	CART-72/1800
OLE	CODE	77887	77888	77889	77890	77891	77892	77893	77894
SA CARTRIDGE POLE	ORDER NUMBER	SACPL-24/600	SACPL-30/750	SACPL-36/900	SACPL-42/1050	SACPL-48/1200	SACPL-54/1350	SACPL-60/1500	SACPL-72/1800
EANER	CODE	77853	77854	77855	77856	77857	77858	77859	77860
SAC MHS V CLEANER	ORDER NUMBER	MHS-24V-ESAC	MHS-30V-ESAC	MHS-36V-ESAC	MHS-42V-ESAC	MHS-48V-ESAC	MHS-54V-ESAC	MHS-60V-ESAC	MHS-72V-ESAC 77860
	# OF BLADES	4	5	9	7	8	6	10	12
SNC	CIFICATIONS POLE LENGTH 'B' (in) (mm)	1981	2133	2286	2438	2590	2743	2895	3200
SPECIFICATIONS	POLE LF (in)	78	84	06	96	102	108	114	126
	VIDTH 'A' (mm)	909	700	006	1050	1200	1350	1500	1800
	BELT V (in)	24	90	36	42	48	54	09	72

Section 8 - Specs and CAD Drawings



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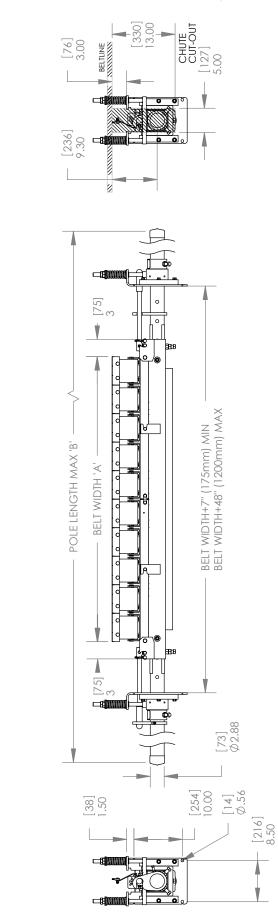


### **Section 8 - Specs and CAD Drawings**

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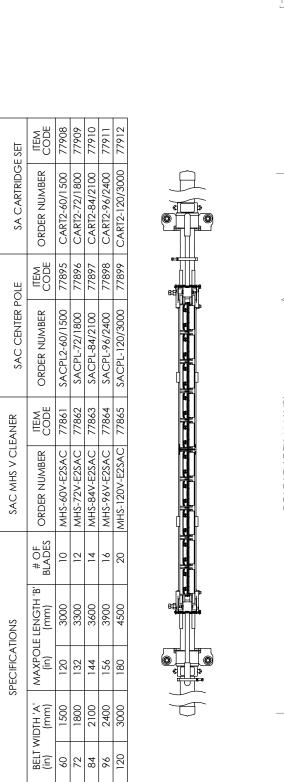
### 8.2 CAD Drawing - MHS ESAC with C-Tips - Dual Cartridge

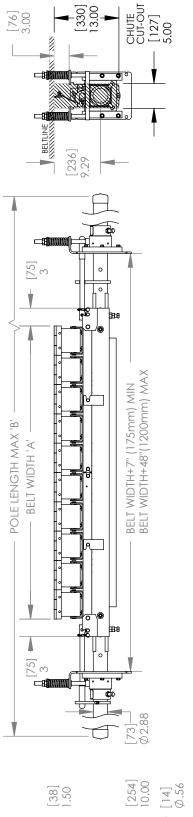


E SET	ITEM CODE	77908	27909	27910	11677	77912
sa cartridge set	ORDER NUMBER	CART2-60/1500	77896 CART2-72/1800	77897 CART2-84/2100	CART2-96/2400	
OLE	ITEM CODE	77895	77896		77898	77899
SAC CENTER POLE	ORDER NUMBER	SACPL2-60/1500 77895 CART2-60/1500	SACPL-72/1800	SACPL-84/2100	SACPL-96/2400	SACPL-120/3000 77899 CART2-120/3000
EANER	ITEM CODE	77848	77849	77850	77851	77852
SAC MHS C CLEANER	ORDER NUMBER	MHS-60-E2SAC 77848	MHS-72-E2SAC 77849	MHS-84-E2SAC 77850	MHS-96-E2SAC 77851	MHS-120-E2SAC 77852
	# OF BLADES	10	12	14	16	20
SNO	MAXPOLE LENGTH 'B' # OF (in) (mm) BLADES	3000	3300	3600	3900	4500
SPECIFICATIONS	MAXPOL (in)	120	132	144	156	180
SI	ELT WIDTH 'A' in) (mm)	1500	1800	2100	2400	3000
	BELT V (in)	09	72	84	96	120

### **Section 8 - Specs and CAD Drawings**

### 8.2 CAD Drawing - MHS ESAC with V-Tips - Dual Cartridge





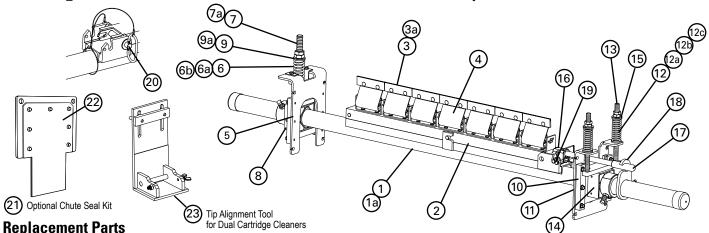
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### **Section 9 - Replacement Parts**

### 9.1 Replacement Parts List - MHS ESAC Secondary Cleaners



кер	lacement Parts	- for Dual Ca		aners
REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. LBS.
	ESAC Cartridge Pole 24"	SACPL-24/600	77887	65.4
	ESAC Cartridge Pole 30"	SACPL-30/750	77888	71.2
	ESAC Cartridge Pole 36"	SACPL-36/900	77889	77.1
	ESAC Cartridge Pole 42"	SACPL-42/1050	77890	82.9
	ESAC Cartridge Pole 48"	SACPL-48/1200	77891	88.8
	ESAC Cartridge Pole 54"	SACPL-54/1350	77892	94.6
1	ESAC Cartridge Pole 60"	SACPL-60/1500	77893	100.5
	ESAC Cartridge Pole 72"	SACPL-72/1800	77894	112.2
	ESAC Cartridge Center Pole 60" (Dual)	SACPL2-60/1500	77895	77.3
	ESAC Cartridge Center Pole 72" (Dual)	SACPL2-72/1800	77896	89.5
	ESAC Cartridge Center Pole 84" (Dual)	SACPL2-84/2100	77897	101.8
	ESAC Cartridge Center Pole 96" (Dual)	SACPL2-96/2400	77898	114.1
	ESAC Cartridge Center Pole 120" (Dual)	SACPL2-120/3000		142.3
1a	Extender Pole (for use with Dual Cartridge Center Pole)	MHP-EP	76392	54.0
	ESAC Cartridge 24"	CART-24/600	77900	3.5
	ESAC Cartridge 30"	CART-30/750	77901	4.3
	ESAC Cartridge 36"	CART-36/900	77902	5.1
	ESAC Cartridge 42"	CART-42/1050	CODE        77887        77888        77889        77890        77891        77892        77893        77894        77895        77896        77897        77898        77898        77898        77898        77898        76392        77900        77901	5.9
	ESAC Cartridge 48"	CART-48/1200	77904	6.7
	ESAC Cartridge 54"	CART-54/1350	77905	7.4
2	ESAC Cartridge 60"	CART-60/1500	77906	8.4
	ESAC Cartridge 72"	CART-72/1800	77907	10.0
	ESAC Cartridge 60" (Dual)	CART2-60/1500	77908	8.6
	ESAC Cartridge 72" (Dual)	CART2-72/1800	77909	10.2
	ESAC Cartridge 84" (Dual)	CART2-84/2100	77910	11.7
	ESAC Cartridge 96" (Dual)	CART2-96/2400	77911	13.3
	ESAC Cartridge 120" (Dual)	CART2-120/3000	77912	16.8
3	C-Tip*	ICT6	74535	0.7
3a	V-Tip* (for vulcanized belts only)	RSA150	73628	1.3
4	PowerFlex™ Cushion*	PFC	75927	4.2
5	SST HD Mounting Base Kit* (includes 1 mounting base and 2 slide guides)	SSTHDMK	77870	10.2
6	SST Spring - White (1 ea.) for belts 18"-30" (450-750 mm)	STS-W	75846	0.5
6a	SST Spring - Silver (1 ea.) for belts 36"-48" (900-1200 mm)	STS-S	75843	0.8
6b	SST Spring - Black (1 ea.) for belts 54"-84" (1350-2100 mm) SST Adj Rod Kit*	STS-B	75844	1.0
7	SST Adj Rod Kit* (incl. 1 rod, 2 nuts, 2 bushings, 1 washer) for belts 18"-60" (450-1500 mm)	STAK	75847	2.9
7a	SST HD Adj Rod Kit* (incl. 1 rod, 2 nuts, 2 HD bushings, 1 washer) for belts 72"-84" (1800-2100 mm)	STAKHD	75892	3.0

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. LBS.
8	SST HD Torsion Pole Mount* (1 ea.)	SSTHDPM	77868	15.0
9	SST Bushing Kit - White/Silver	SSTBK-W	76636	0.1
9a	SST Bushing Kit - Black	SSTBK-B	76637	0.1
10	ST Slide Guide Kit	STGK2	77867	1.1
-	SST HD Cartridge Tensioner - White (includes 1 ea. item 5, 6, 7, 8) for belts 18"-30" (450-750 mm)	SST1HD-W	77876	30.3
-	SST HD Cartridge Tensioner - Silver (includes 1 ea. item 5, 6a, 7, 8) for belts 36"-48" (900-1200 mm)	SST1HD-S	77877	30.7
-	SST HD Cartridge Tensioner - Black (includes 1 ea. item 5, 6b, 7a, 8) for belts 54"-84" (1350-2100 mm)	SST1HD-B	77878	31.0
11	CST HD Mounting Base Kit*	CSTHDMK	77871	8.5
12	CST Spring - White (1 ea.) for belts 18"-30" (450-750 mm)	CTS-W	77742	0.5
12a	CST Spring - Silver (1 ea.) for belts 36"-48" (900-1200 mm)	CTS-S	77743	0.5
12b	CST Spring - Black (1 ea.) for belts 54"-84" (1350-2100 mm)	CTS-B	77744	0.6
12c	CST Spring - Gold (1 ea.) for belts 96"-120" (2400-3000 mm)	CTS-G	77745	0.8
13	CST Adj Rod Kit (incl. 2 rods, 4 nuts, 4 bushings, 2 washers)	CSTAK	77031	3.3
14	CST HD Torsion Pole Mount* (1 ea.)	CSTHDPM	77869	16.4
15	CST Bushing Kit (includes 4 bushings)	CSTBK	77037	0.1
-	CST HD Cartridge Tensioner - White (incl. 1 ea. item 11, 13, 14 and 2 ea. item 12) for belts 18"-30" (450-750 mm)	CST1HD-W	77872	30.1
-	CST HD Cartridge Tensioner - Silver (incl. 1 ea. item 11, 13, 14 and 2 ea. item 12a) for belts 36"-48" (900-1200 mm)	CST1HD-S	77873	30.1
-	CST HD Cartridge Tensioner - Black (includes 1 ea. item 11, 13, 14 and 2 ea. item 12b) for belts 54"-84" (1350-2100 mm)	CST1HD-B	77874	30.1
-	CST HD Cartridge Tensioner - Gold (includes 1 ea. item 11, 13, 14 and 2 ea. item 12c) for belts 96"-120" (2400-3000 mm)	CST1HD-G	77875	30.7
16	ESAC Removal Knuckle	SACRKN	77882	3.2
17	ESAC Removal Handle	SACRH	77883	3.0
18	ESAC Handle Lock Plate	SACRHL	77884	1.7
19	Knuckle Retainer Pin	SACKRP	77885	0.2
20	SAC Hitch Pin	SACHP2	77768	0.9
-	ESAC Removal Kit (includes 1 ea. item 16, 17, 18, 19, 20)	SACRKT	77886	9.0
21	ESAC Chute Seal Kit	SACSK	77052	3.9
22	ESAC Chute Seal Replacement Cover	SACSRC	77065	0.5
23	ESAC Cartridge Tip Alignment Tool (Dual)	SAC2-TIP-TL	77866	2.5

\*Hardware Included

Lead Time: 1 working day

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

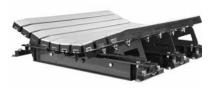


- Extra cleaning power right on the head pulley
- A 10" (250mm) TuffShear<sup>™</sup> blade provides increased blade tension on the belt to peel off abrasive materials
- The unique Visual Tension Check<sup>™</sup> ensures optimal blade tensioning and quick, accurate retensioning
- Easy to install and simple to service

#### MDWS DryWipe Secondary Cleaner

- Wipes the belt dry as final cleaner in system
- Automatic blade tensioning to the belt
- Easy, visual blade tension check
- Simple, one-pin blade replacement

#### **DRX Impact Beds**



- Exclusive Velocity Reduction Technology<sup>¬</sup> to better protect the belt
- Slide-Out Service<sup>™</sup> 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<sup>™</sup> 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

#### **Belt Plows**



- A belt cleaner for the tail pulley
- Exclusive blade design quickly spirals debris off the belt
- Economical and easy to service
- Available in vee or diagonal models



### **The Flexco Vision**

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



2525 Wisconsin Avenue • Downers Grove, IL 60515-4200 • USA Tel: (630) 971-0150 • Fax: (630) 971-1180 • E-mail: info@flexco.com

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