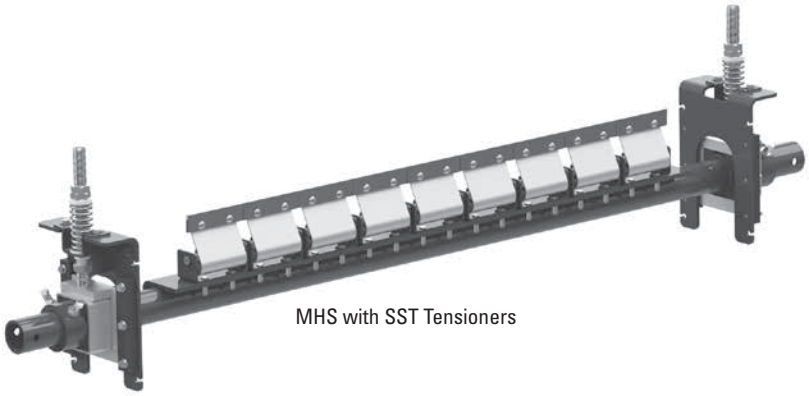
MHS HD Secondary Belt Cleaner

Installation, Operation and Maintenance Manual



MHS with SST Tensioners

MHS with MST Tensioners

MHS with ATV Tensioners

MHS HD Secondary Cleaner

Purchase Date:_____

Purchased From: _____

Installation Date: _____

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 an MHS 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: 612-8818-2000

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 labour
- Lower maintenance budget costs
- Increased service life for the belt cleaner and other conveyor components

1.3 Service Option

The MHS 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.

Section 2 - Safety Considerations and Precautions

Before installing and operating the MHS 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

⚠ DANGER

It is imperative that Lockout/Tagout (LOTO) regulations, be followed before undertaking the preceding activities. Failure to use LOTO exposes workers to uncontrolled behaviour 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

⚠ 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

⚠ DANGER

Every belt cleaner is an in-running nip hazard. Never touch or prod an operating cleaner. Cleaner hazards may cause instantaneous amputation and entrapment.

⚠ WARNING

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

⚠ WARNING

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.

Section 3 - Pre-installation Checks and Options

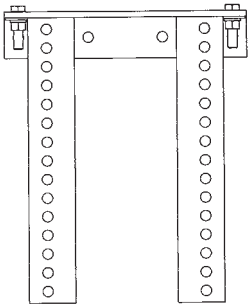
3.1 Checklist

- 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)

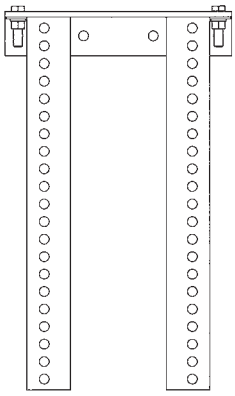
Section 3 - Pre-installation Checks and Options

3.2 Optional Installation Accessories

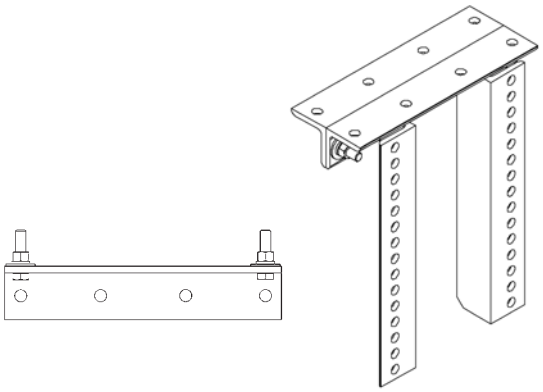
Versatile, adjustable brackets that can be mounted on the conveyor structure so the MHS HD Secondary Cleaner can be quickly and easily bolted into place. Pole extenders are also available for wide, non-standard conveyor structures.



76071
Standard Mounting Bracket Kit
- For most secondary cleaner installs.
- 325mm W x 388mm L



76072
Long Mounting Bracket Kit
- For installations that require extra length legs.
- 325mm W x 538mm L

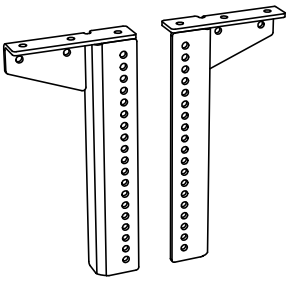


76073
Optional Top Angle Kit
- Used with both standard and long mounting bracket kits for additional mounting options.
- 325mm L

Optional Mounting Kits

Description	Ordering Number	Item Code	Wt. Kg.
Standard Mounting Bracket Kit *	SSTSMB	76071	15.6
Long Mounting Bracket Kit *	SSTLMB	76072	19.7
Optional Top Angle Kit *	SSTOTA	76073	4.8
Pole Extender Kit	MAPEK	76024	9.0
MST Drop Bracket Kit	MSTDB	79434	12.0

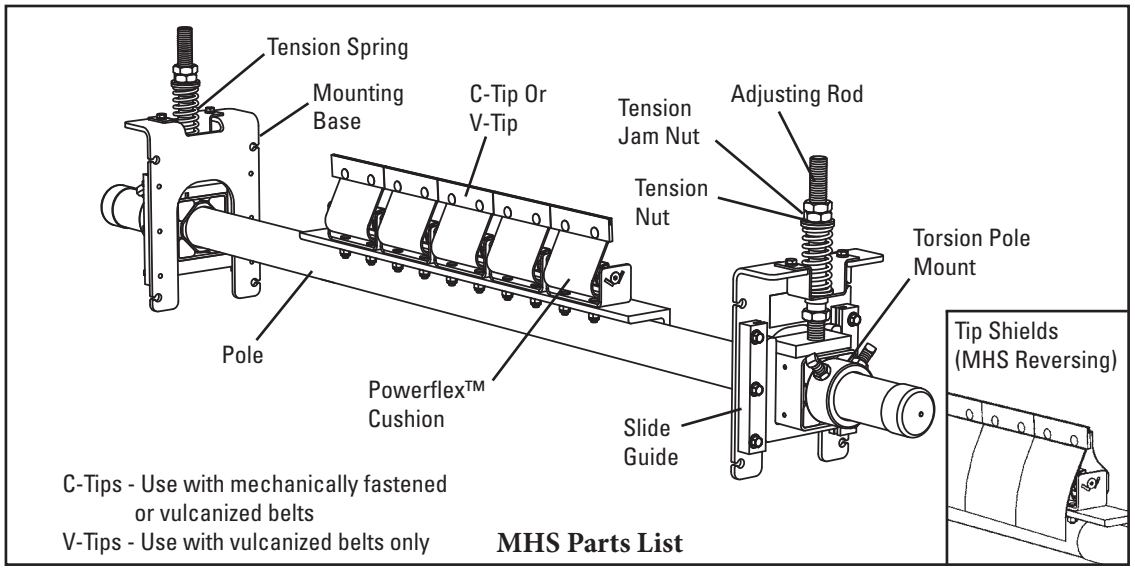
*Hardware Included
Lead time: 1 working day



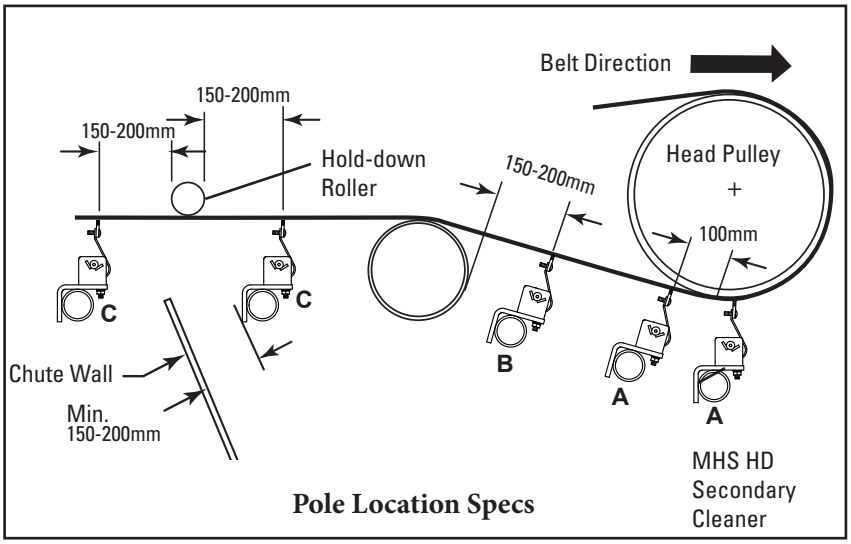
79434
MST Drop Bracket Kit (includes 2 brackets)
(for MST Tensioner only)

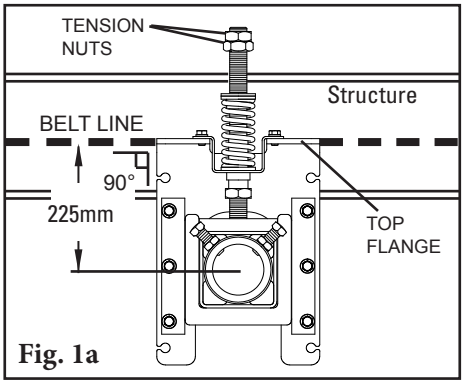
Section 4.1 - Installation Instructions

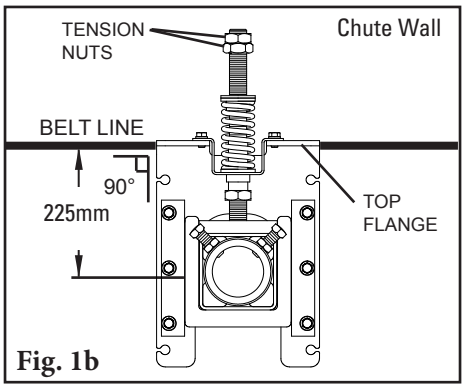
MHS HD with SST Standard & Reversing Secondary Cleaners

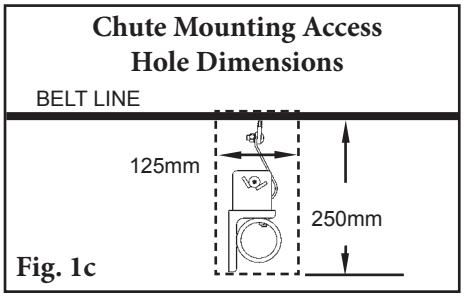


Physically lock out and tag the conveyor at the power source before you begin cleaner installation.



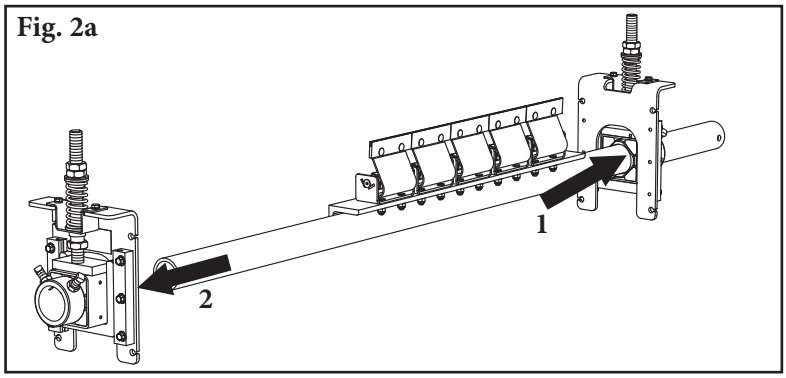


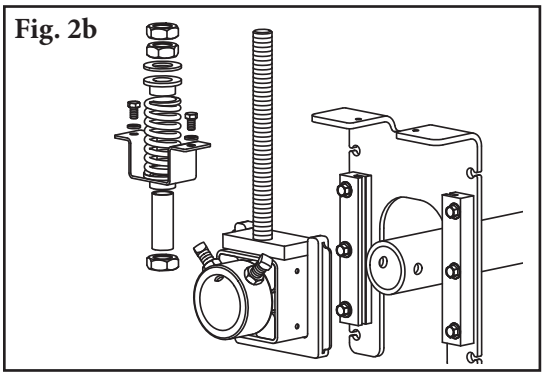




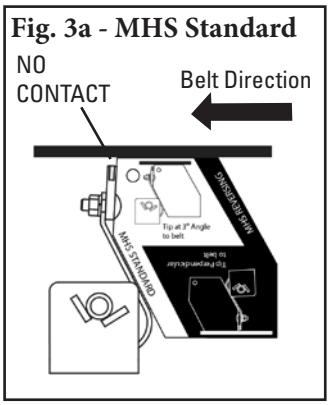
1. **Install the spring tensioner mounting bases.** (For push-up tensioning refer to additional instructions on Page 10.) Clamp the mounting base into position so the top flange of the base is aligned with the belt (Fig. 1a). Bolt or weld the mounting base in place. Locate and install the mounting base on the opposite side. Adjust the tension nuts on each side so the centre of the torsion pole mount is 225mm (9") below the belt line.

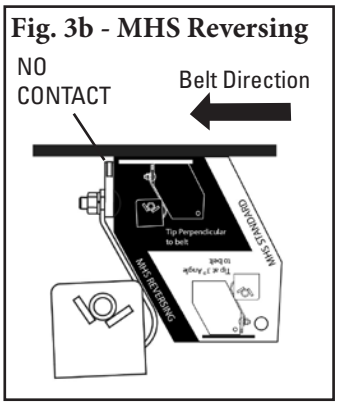
   NOTE: For chute mounting, a belt location line must be drawn on the chute wall so the mounting base can be aligned with the belt (Fig. 1b). Cut access holes as needed (Fig. 1c).

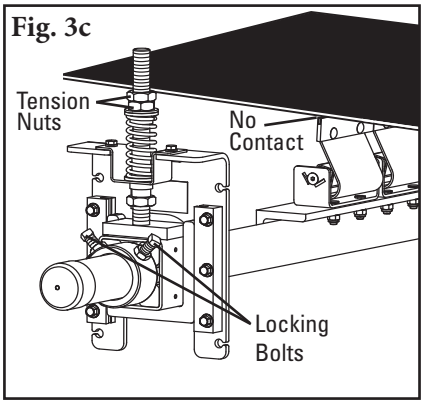




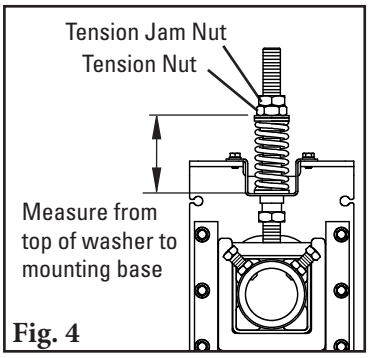
2. **Install the pole.** Slide the pole into one torsion pole mount as far as needed and locate the other end into the opposite mount (Fig. 2a). If there is not enough space, remove one of the torsion pole mounts from the mounting base, slide the pole through the mounting base and reassemble (Fig. 2b).







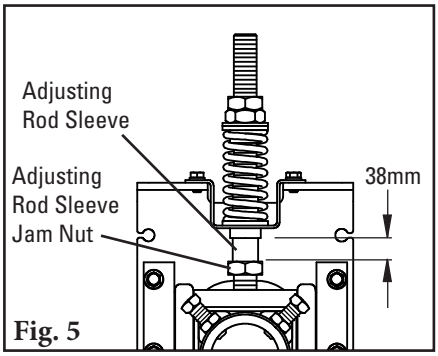
3. **Set the blade angle.** Centre the pole/blades on the belt. **For MHS Standard:** Rotate the pole until the tips align with the white "MHS Standard" side of the tip setup gauge provided (Fig. 3a). **For MHS Reversing:** Rotate the pole until the tips are perpendicular to the belt, using the black "MHS Reversing" side of the tip setup gauge provided (Fig. 3b). Tighten the two locking bolts on each torsion pole mount to lock the pole in place (Fig. 3c). 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.
4. **Set the blade tension.** Loosen the top tension jam nuts on both sides. Turn the tension nuts until the correct spring compression is reached (Fig. 4). Spring compression is determined by spring length. See the chart below for the correct spring length for your belt width.



Shading indicates preferred spring option. Measure from the top of the flat washer to the mounting base to determine spring length.

SST Tensioner Spring Length Chart

Blade Width	White Spring	Silver Spring	Black Spring	Gold Spring
mm	mm	mm	mm	mm
450	86	102	N/A	N/A
600	79	98	N/A	N/A
750	73	95	N/A	N/A
900	N/A	95	98	N/A
1050	N/A	92	95	N/A
1200	N/A	89	92	N/A
1350	N/A	86	92	95
1500	N/A	83	89	95
1800	N/A	N/A	86	92
2100	N/A	N/A	79	89
2400	N/A	N/A	N/A	89
2700	N/A	N/A	N/A	86
3000	N/A	N/A	N/A	86



5. **Set adjusting rod sleeve.** After setting the blade tension, screw the adjusting rod sleeve into the UHMW bushing until 38mm is showing (Fig. 5). Tighten the adjusting rod sleeve jam nut.
6. **Test run the cleaner and inspect the cleaning performance.** If vibration occurs or more cleaning efficiency is desired, increase the blade tension by making 3 mm compression adjustments on the tension springs.

Section 4.2 - Push-up Tensioning Instructions

MHS HD Secondary Cleaner

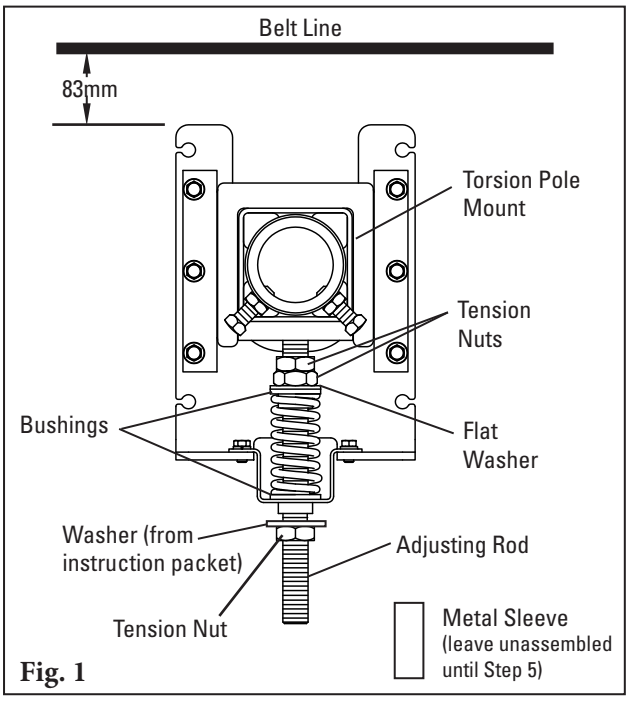


Fig. 1

1. **Reconfigure the standard pull-up tensioner to the push-up style.** Remove the 3 tension nuts, the flat washer, 2 bushings, the spring, the sleeve and the hat bracket; reassemble (Fig. 1) with 2 tension nuts, the flat washer, 2 bushings, the spring and the hat bracket on the upper end of the adjusting rod. Add washer (from instruction packet) and 3rd tension nut to bottom of adjusting rod.

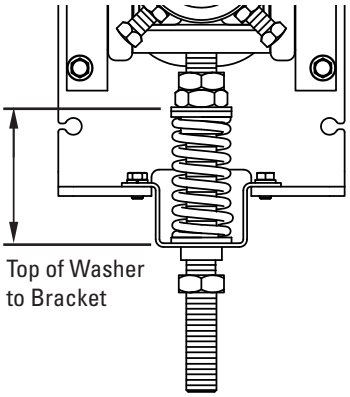
2. **Install the tensioner mounting bases.** Mount the bases to the structure or chute so that the tops of the base legs are 83mm below the belt (Fig. 1).

3. **Install the cleaner pole and set the blade angle.** Follow the installation steps from the cleaner instructions on Page 9. **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 below. Tighten the 2 tension nuts together to prevent loosening.

SST Tensioner Spring Length Chart

Blade Width	White Spring	Silver Spring	Black Spring	Gold Spring
mm	mm	mm	mm	mm
450	86	102	N/A	N/A
600	79	98	N/A	N/A
750	73	95	N/A	N/A
900	N/A	95	98	N/A
1050	N/A	92	95	N/A
1200	N/A	89	92	N/A
1350	N/A	86	92	95
1500	N/A	83	89	95
1800	N/A	N/A	86	92
2100	N/A	N/A	79	89
2400	N/A	N/A	N/A	89
2700	N/A	N/A	N/A	86
3000	N/A	N/A	N/A	86



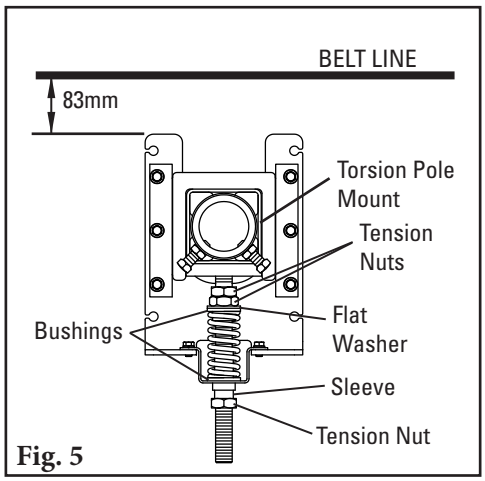
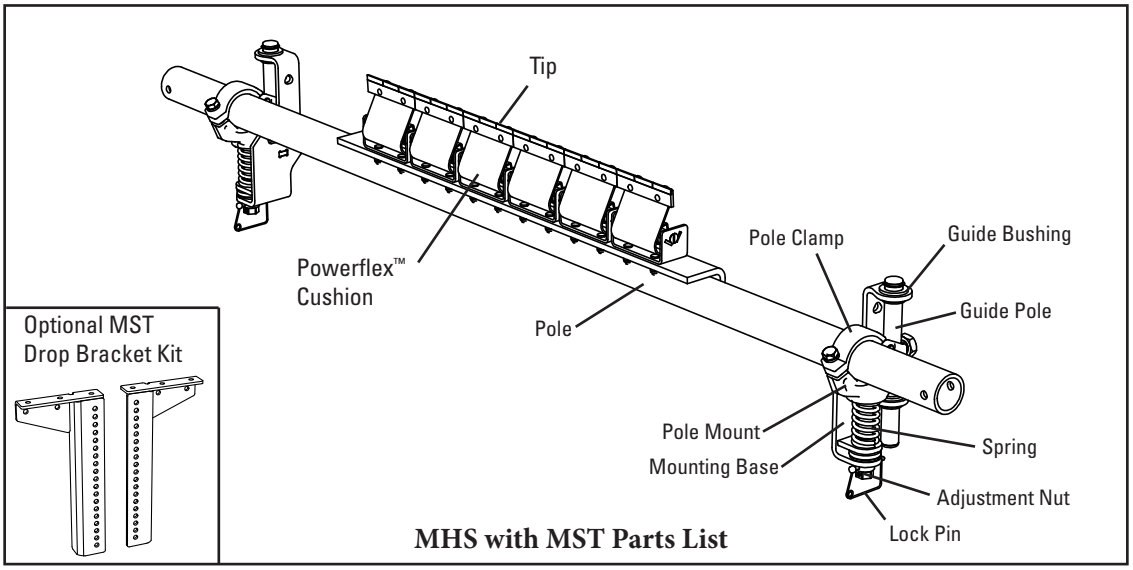


Fig. 5

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 the sleeve in place (Fig. 5).

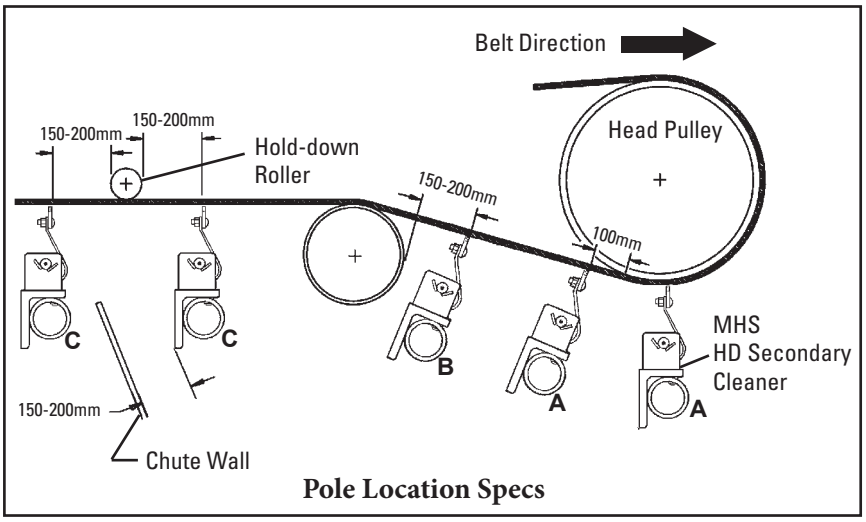
Section 4.3 - Installation Instructions

MHS HD with MST Standard & Reversing Secondary Cleaners
for belts 450-1800mm



MHS with MST Parts List

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



Pole Location Specs

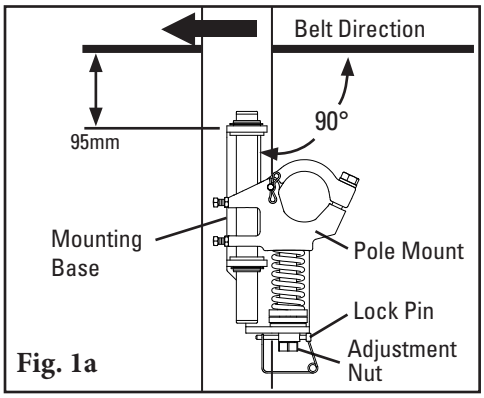


Fig. 1a

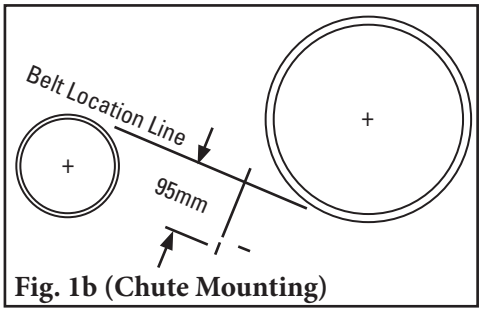


Fig. 1b (Chute Mounting)

Chute Mounting Access Hole Dimensions

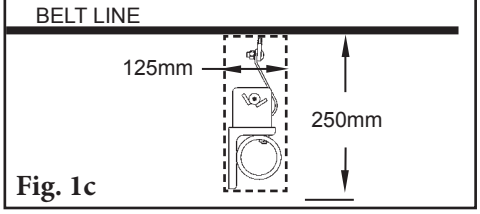


Fig. 1c

1. **Install the spring tensioner mounting bases.** The preferred mounting orientation relative to belt direction is shown in Fig. 1a; if necessary the tensioners may be mounted with the opposite belt direction. Clamp the mounting base into position so the top flange is 95mm below the bottom of the belt. Bolt or weld the mounting base in place. Locate and install the mounting base on the opposite side. Remove the tensioner lock pins and turn the adjustment nuts to fully lower the pole mount.

   Note: For chute mounting, a belt location line must be drawn on the chute wall so the mounting base can be aligned 95mm below the belt (Fig. 1b). Cut access holes as needed.

Section 4.3 - Installation Instructions

MHS HD with MST Standard & Reversing Secondary Cleaners

2. **Install the pole.** Remove pole clamp bolt and lift or remove top half of pole clamp from the tensioner on the near side of the conveyor, and loosen pole clamp bolt on the opposite side. Slide the pole across the conveyor and through the loosened pole clamp, then place the near end of pole in remaining pole clamp (Fig. 2). Replace top half of pole clamp, reinstall the bolt and tighten both bolts finger tight.

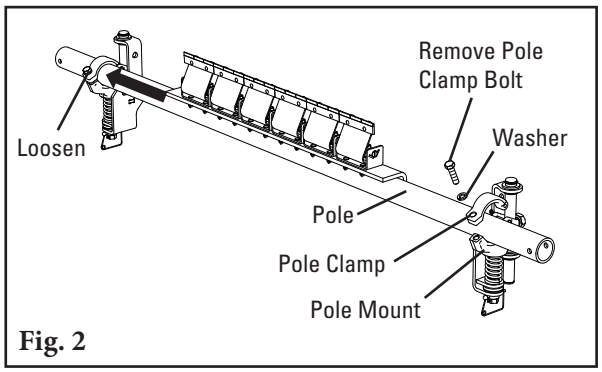


Fig. 2

3. **Set the blade angle.** Center the pole/blades on the belt. **For MHS Standard:** Rotate the pole until the tips align with the white "MHS Standard" side of the tip setup gauge provided (Fig. 3a). **For MHS Reversing:** Rotate the pole until the tips are perpendicular to the belt, using the black "MHS Reversing" side of the tip setup gauge provided (Fig. 3b). Tighten the pole clamp bolt on each pole mount to lock the pole in place. 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.

Fig. 3a - MHS Standard

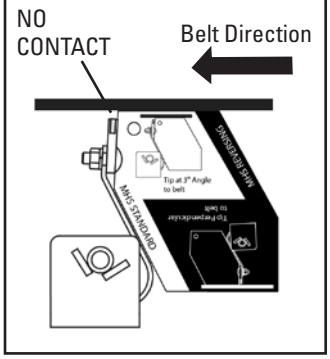
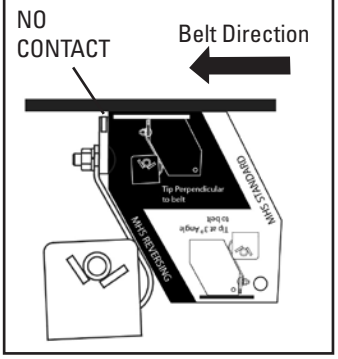


Fig. 3b - MHS Reversing



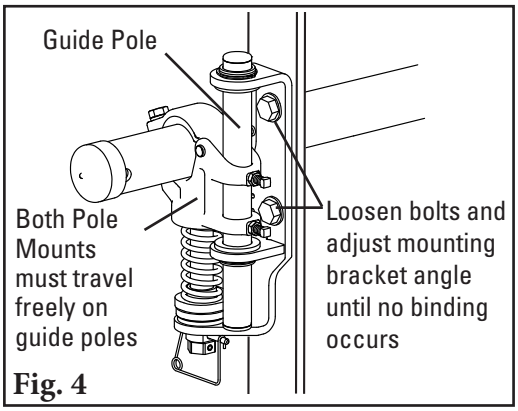


Fig. 4

4. **Ensure the tensioner travels freely.** Pull up and push down on each pole end to ensure the pole mount travels freely on the guide pole. If there is any sign of binding, loosen the bolts on the mounting base and pivot until the tensioner moves freely (Fig. 4). Retighten bolts.

5. **Set the blade tension.** Turn the adjustment nuts until the correct spring compression is reached (Fig. 5). Spring compression is determined by the spring length. See the chart below for the correct spring length for your belt width. Replace locking pins.

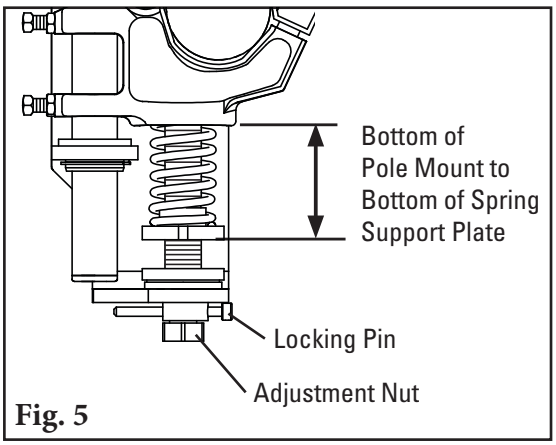


Fig. 5

MST Tensioner Spring Length Chart

Blade Width	2 White Springs	2 Silver Springs	2 Black Springs
mm	mm	mm	mm
450	73	86	89
600	67	86	86
750	60	83	86
900	54	79	83
1050	48	76	79
1200	N/A	73	79
1350	N/A	73	76
1500	N/A	70	73
1800	N/A	64	70

Shading indicates preferred spring option.

MHS HD with MST Standard & Reversing Secondary Cleaners

6. **Secure guide poles.** Ensure the ends of the guide pole extend at least 12mm outside top and bottom guide bearings. If adjustment is necessary, loosen guide pole set screws and lock nuts, then tap guide pole up or down. Tighten guide pole set screws and lock nuts (Fig. 6).

7. **Check movement of each tensioner** to ensure they do not bind up. If there are binding concerns, refer to Step 4.

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 3.18mm (1/8") compression adjustments on the tension springs.

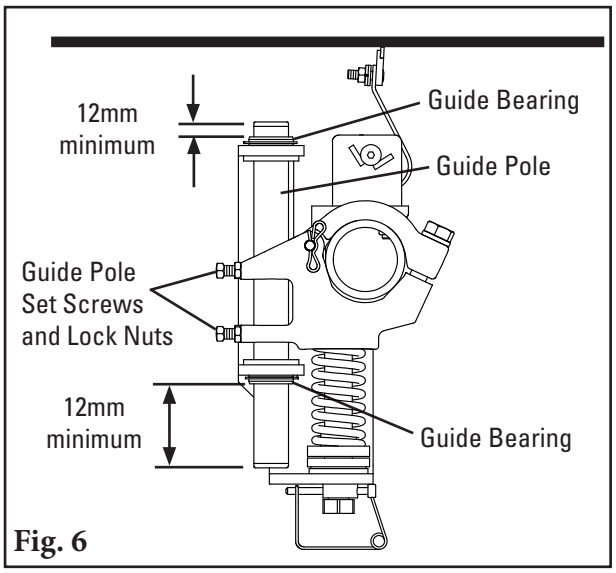
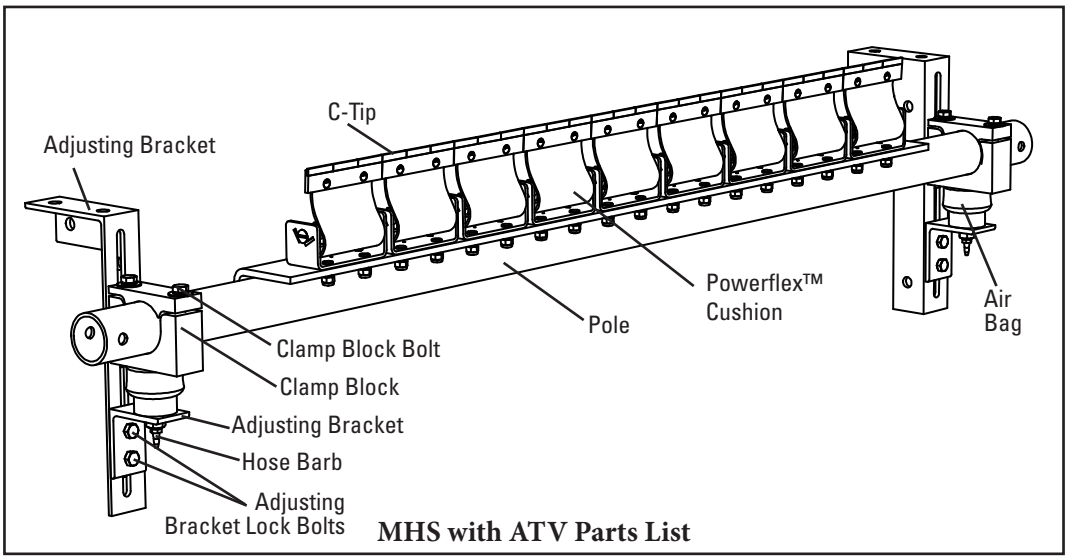


Fig. 6

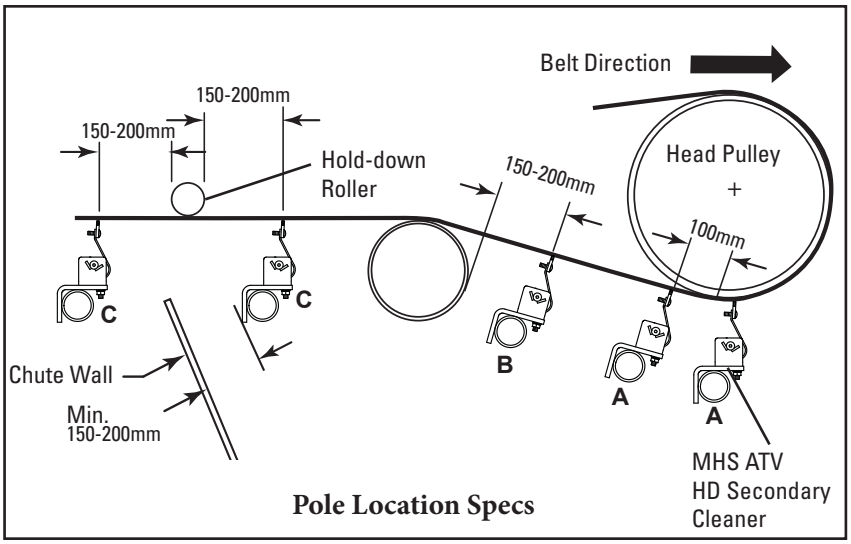
Section 4.4 - Installation Instructions

MHS with ATV Tensioner



MHS with ATV Parts List

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



Pole Location Specs

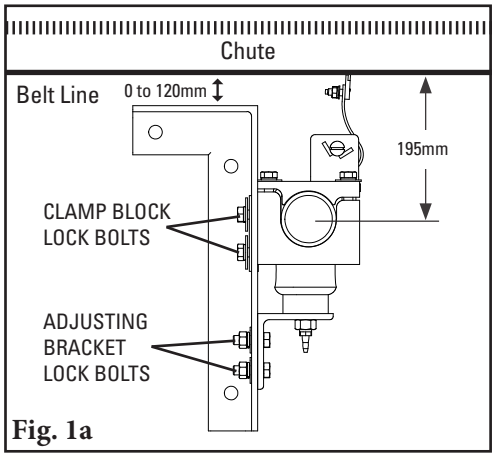


Fig. 1a

1. **Install mounting brackets. For chute mounting:** For a chute installation a belt location line must first be established. Draw a line on the chute replicating this location. If head pulley and snub pulley are close, it may be necessary to assume an approximate belt line between the two. In the determined location draw a line perpendicular to the belt line.

   Locate top of mounting bracket at 0 to 120mm from the belt line (Fig 1a.). To move the clamp blocks, if necessary, loosen the clamp block lock bolts and the adjusting bracket lock bolt and move the clamp block to a position where the centre of the pole is 195mm below the bottom of the belt. Bolt or weld in place. Repeat this step on the opposite side. On one side an access hole may be required (Fig. 1b). **NOTE:** The brackets must be aligned perpendicular to the belt.

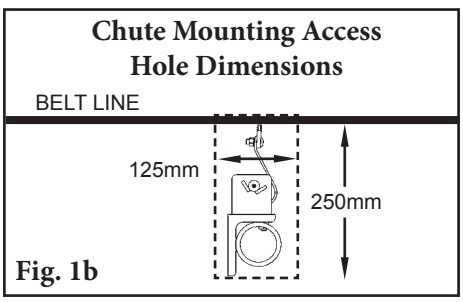


Fig. 1b

Section 4.4 - Installation Instructions

MHS with ATV Tensioner

For structure mounting: In most applications the standard mounting brackets will have adequate room to fit on the structure with no cutting. Clamp the mounting bracket into position (use 150mm clamps). Move the clamp block to align the centre of the block with a point 195mm below the belt (Fig. 1c). To move the clamp blocks, if necessary, loosen the clamp block lock bolts and the adjusting bracket lock bolt and move the clamp block to a position where the centre of the hole is 195mm below the bottom of the belt. The bracket can now be bolted or welded in place. Locate and install bracket on the opposite side of belt in alignment with the first bracket. **NOTE:** The brackets must be aligned perpendicular to the belt.

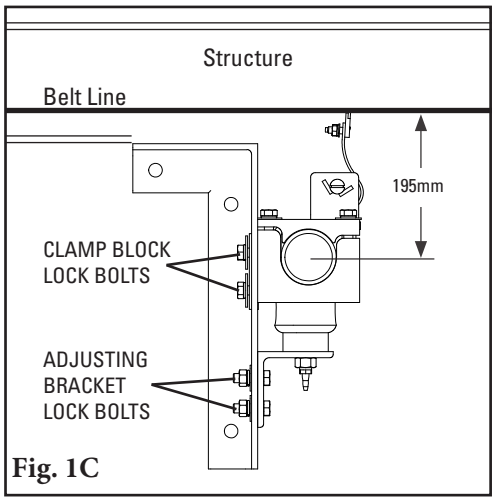


Fig. 1C

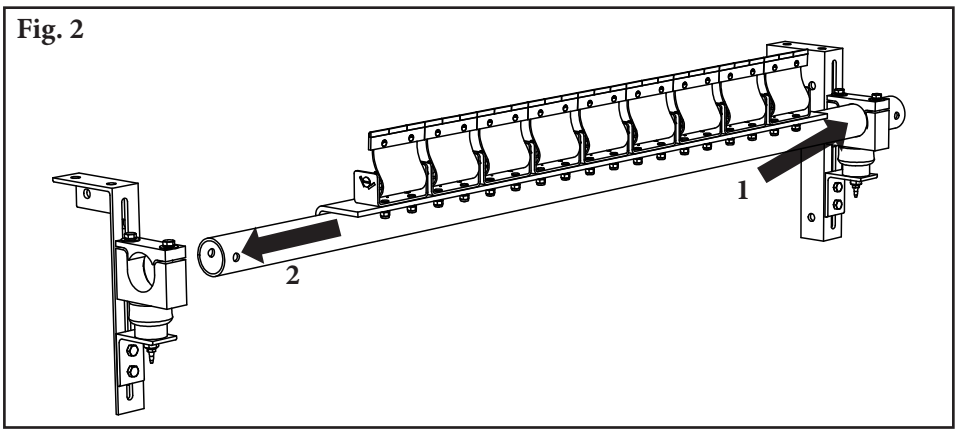


Fig. 2

2. **Install the pole.** Remove the clamp block bolt from the access side clamp block and remove the upper half of the clamp block. On the opposite side clamp block, loosen the clamp block bolt enough to allow the pole to slide freely through (Fig. 2). Slide the pole across the belt, through the loosened clamp block, and locate into the cradle clamp block. Position the upper clamp block half over the pole and reinstall the clamp block bolt. Do not fully tighten.

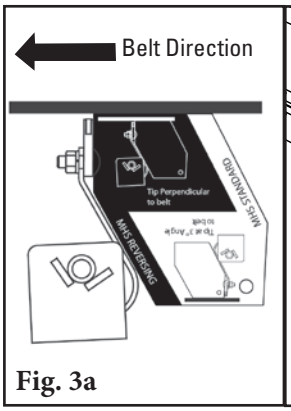


Fig. 3a

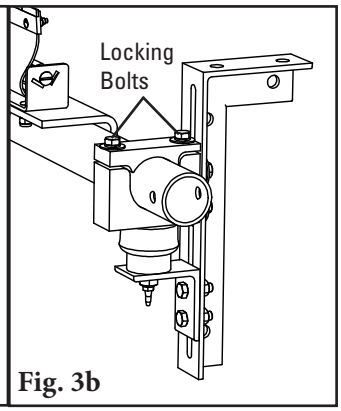


Fig. 3b

3. **Set the blade angle.** Centre the pole/blades on the belt. Rotate the pole until the tips are perpendicular to the belt. Tighten the two locking bolts on each torsion pole mount to lock the pole in place (Fig. 3b). 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 4.5 - Push-up Tensioning Instructions

MHS with ATV Tensioner

4. **Connect the supply lines and set tension pressure.** With the parts supplied, attach a line to each air bag and run the lines to the outlet side of the control box (Fig. 4).

   NOTE: Be sure lines are safely away from the belt. Connect the line from the inlet side of the box to the site's supply or air tank. Test the connections for leaks and set the pressure per the chart to the right. Pressure may be reduced to suit application.

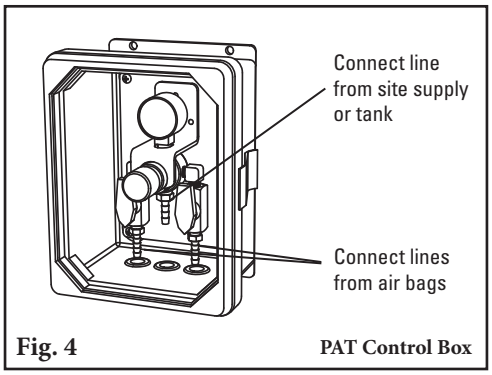


Fig. 4 PAT Control Box

ATV Tensioner Pressure Chart

Belt Width mm	KPA	PSI
600	270	39
750	284	41
900	298	43
1050	311	45
1200	325	47
1350	339	49
1500	353	51
1800	380	55
2100	409	59
2400	438	63

5. **Test run the cleaner and inspect the cleaning performance.** If vibration occurs, increase tip layback by a small amount (approx. 3 degrees).

Section 5 - Pre-Operation Checklist and Testing

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.

Section 6 - Maintenance

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 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 one on Page 9 (SST spring tensioner), Page 11 (MST spring tensioner or Page 14 (ATV air tensioner).
- 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: _____

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

Activity: _____

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

Activity: _____

Section 6 - Maintenance

6.5 Cleaner Maintenance Checklist

Site: _____ **Inspected by:** _____ **Date:** _____

Belt Cleaner: _____ **Serial Number:** _____

Beltline Information:

Beltline Number: _____ Belt Condition: _____

Belt Width: ☐ 600mm (24") ☐ 750mm (30") ☐ 900mm (36") ☐ 1050mm (42") ☐ 1200mm (48") ☐ 1350mm (54") ☐ 1500mm (60") ☐ 1800mm (72") ☐ 2100mm (84") ☐ 2400mm (96")

Belt Speed:_____m/s 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

Blade wear: Left _____ Middle _____ Right _____

Blade condition: ☐ Good ☐ Grooved ☐ Smiled ☐ Not contacting belt ☐ Damaged

Measurement of Spring: Required _____ Currently _____

For PAT Tensioner Only: Air/Nitrogen Pressure Required _____ Currently _____

☐ Inspect Air Bags and Lines

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

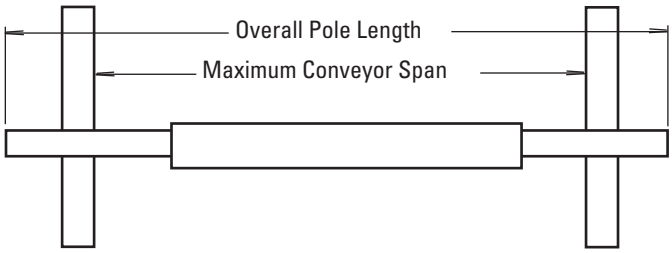
Problem	Possible Cause	Possible Solutions
Vibration	Cleaner secure bolts not set	Ensure all locking nuts are tight (Loctite)
	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge) MHS Standard 1°-3° into belt; MHS Reversing and SAT2 perpendicular
	Belt tension too high	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
	Nylon bearing worn out or missing	Replace nylon bearing
Material buildup on cleaner	Cleaner not set up correctly	Ensure cleaner set up properly (1°-3° into belt)
	Buildup on chute	Ensure cleaner is not located too close to back of chute, allowing buildup
	Cleaner being overburdened	Introduce Flexco primary cleaner
	Excessive sticky material	Frequently clean unit of buildup
Damaged belt cover	Cleaner over-tensioned	Ensure cleaner is correctly tensioned
	Cleaner blade damage	Check blade for wear, damage and chips, replace where necessary
	Attack angle not correct	Ensure cleaner set up properly (check tip angle with gauge) MHS Standard 1°-3° into belt; MHS Reversing and SAT2 perpendicular
	Material buildup in chute	Frequently clean unit of buildup
Cleaner not conforming to belt	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge) MHS Standard 1°-3° into belt; MHS Reversing and SAT2 perpendicular
	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
Material passing cleaner	Cleaner not set up correctly	Ensure cleaner set up properly (check tip angle with gauge) MHS Standard 1°-3° into belt; MHS Reversing and SAT2 perpendicular
	Cleaner tension too low	Ensure cleaner is correctly tensioned
	Cleaner blade worn/damaged	Check blade for wear, damage and chips, replace where necessary
	Cleaner being overburdened	Introduce Flexco primary cleaner
	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
	Blade in backwards	Install blade correctly and set correct tension
Damage to mechanical fastener	Incorrect cleaner blade selection	Change blade type to accommodate fastener style (UC or UF)
	Belt not skived correctly	Spot and redo splice correctly, lowering the profile flush or below belt surface
	Blade angle incorrect	Reset with gauge
Missing material in belt centre only	Cupped Belt	Install hold-down roller and reset blade angle with gauge
	Cleaner blade worn/damaged	Check blade for wear, damage and chips, replace where necessary
Missing material on outer edges only	Cupped Belt	Install hold-down roller and reset blade angle with gauge
	Cleaner blade worn/damaged	Check blade for wear, damage and chips, replace where necessary
MST Tensioners binding	Tensioners not aligned properly	Adjust mounting bases until tensioners travel without binding
	Material buildup on tensioner guide pole	Clean off guide pole

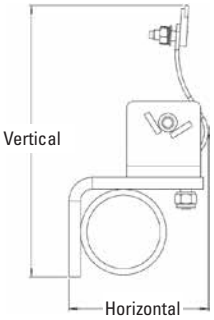
Section 8 - Specs and CAD Drawings

8.1 Specs and Guidelines

Pole Length Specifications

CLEANER SIZE	BLADE WIDTH	POLE LENGTH	MAXIMUM CONVEYOR SPAN
mm	mm	mm	mm
600	600	1200	950
750	750	1350	1100
900	900	1500	1250
1050	1050	1650	1400
1200	1200	1800	1550
1350	1350	1950	1700
1500	1500	2200	1950
1800	1800	2350	2100
2100	2100	2650	2400
2400	2400	2950	2700





Clearance Guidelines for Installation

HORIZONTAL CLEARANCE REQUIRED		VERTICAL CLEARANCE REQUIRED	
mm	in.	mm	in.
127	5	254	10

SST Tensioner Spring Length Chart

Blade Width	White Spring	Silver Spring	Black Spring	Gold Spring
mm	mm	mm	mm	mm
450	86	102	N/A	N/A
600	79	98	N/A	N/A
750	73	95	N/A	N/A
900	N/A	95	98	N/A
1050	N/A	92	95	N/A
1200	N/A	89	92	N/A
1350	N/A	86	92	95
1500	N/A	83	89	95
1800	N/A	N/A	86	92
2100	N/A	N/A	79	89
2400	N/A	N/A	N/A	89
2700	N/A	N/A	N/A	86
3000	N/A	N/A	N/A	86

Shading indicates preferred spring option. Measure spring as shown below.

MST Tensioner Spring Length Chart

Blade Width	2 White Springs	2 Silver Springs	2 Black Springs
mm	mm	mm	mm
450	73	86	89
600	67	86	86
750	60	83	86
900	54	79	83
1050	48	76	79
1200	N/A	73	79
1350	N/A	73	76
1500	N/A	70	73
1800	N/A	64	70

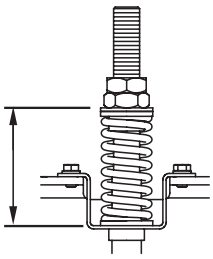
Shading indicates preferred spring option.
Measure spring as shown below.

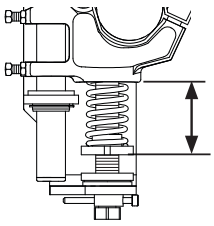
ATV Tensioner Pressure Chart

Belt Width	KPA	PSI
mm		
600	270	39
750	284	41
900	298	43
1050	311	45
1200	325	47
1350	339	49
1500	353	51
1800	380	55
2100	409	59
2400	438	63

SST

Top of Washer to Mounting Base





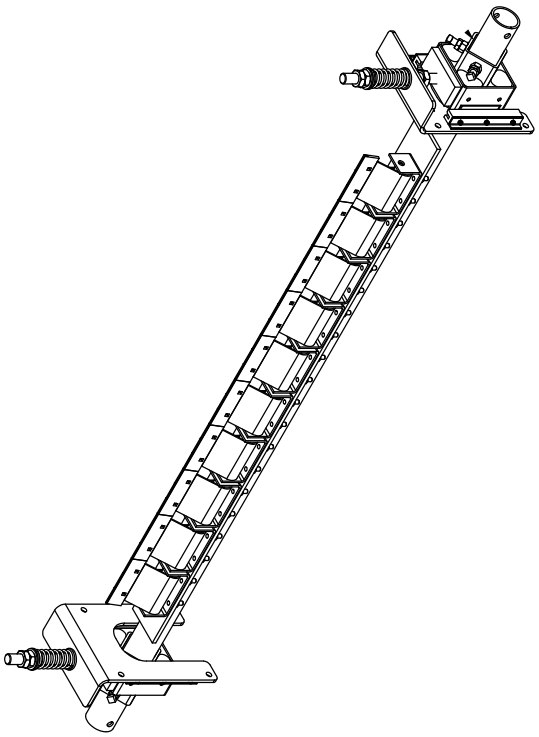
MST

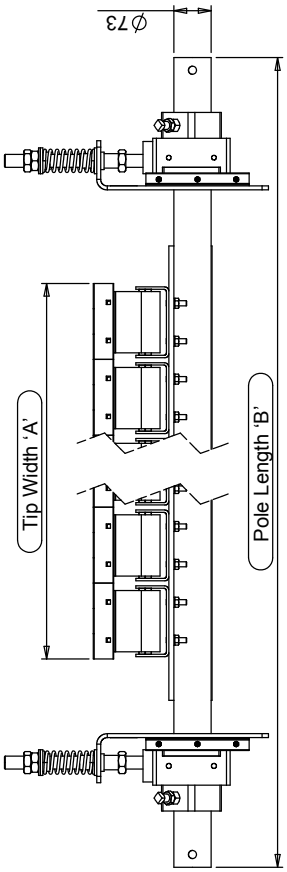
Bottom of Pole Mount to Bottom of Spring Support Plate

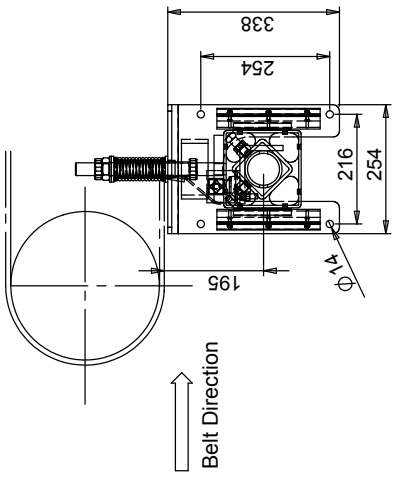
- Maximum Belt Speed ..... SST/ATV Tensioner - 6m/s
- Maximum Belt Speed ..... MST Tensioner - 5m/s
- Temperature Rating ..... -35°C to 82°C
- Usable Blade Wear Length 9mm
- Blade Materials ..... C-Tip: Impact Resistant Tungsten Carbide (works with mechanical fasteners)
  V-Tip: Long Life Tungsten Carbide (for vulcanized belts only)
- Available for Belt Widths ..... SST Tensioners - 450 to 2400 mm. Other sizes available upon request.
- Available for Belt Widths ..... MST Tensioners - 450 to 1800mm. Other sizes available upon request.
- Available for Belt Widths ..... ATV Tensioners - 600 to 2400 mm. Other sizes available upon request.

Section 8 - Specs and CAD Drawings

8.2 CAD Drawing - MHS with SST Tensioners







MINELINE MHS BELT CLEANER WITH FULL POLE AND SPRING TENSIONER (MHS-FP)

COMPLETE MHS-FP CLEANER -C TIPS

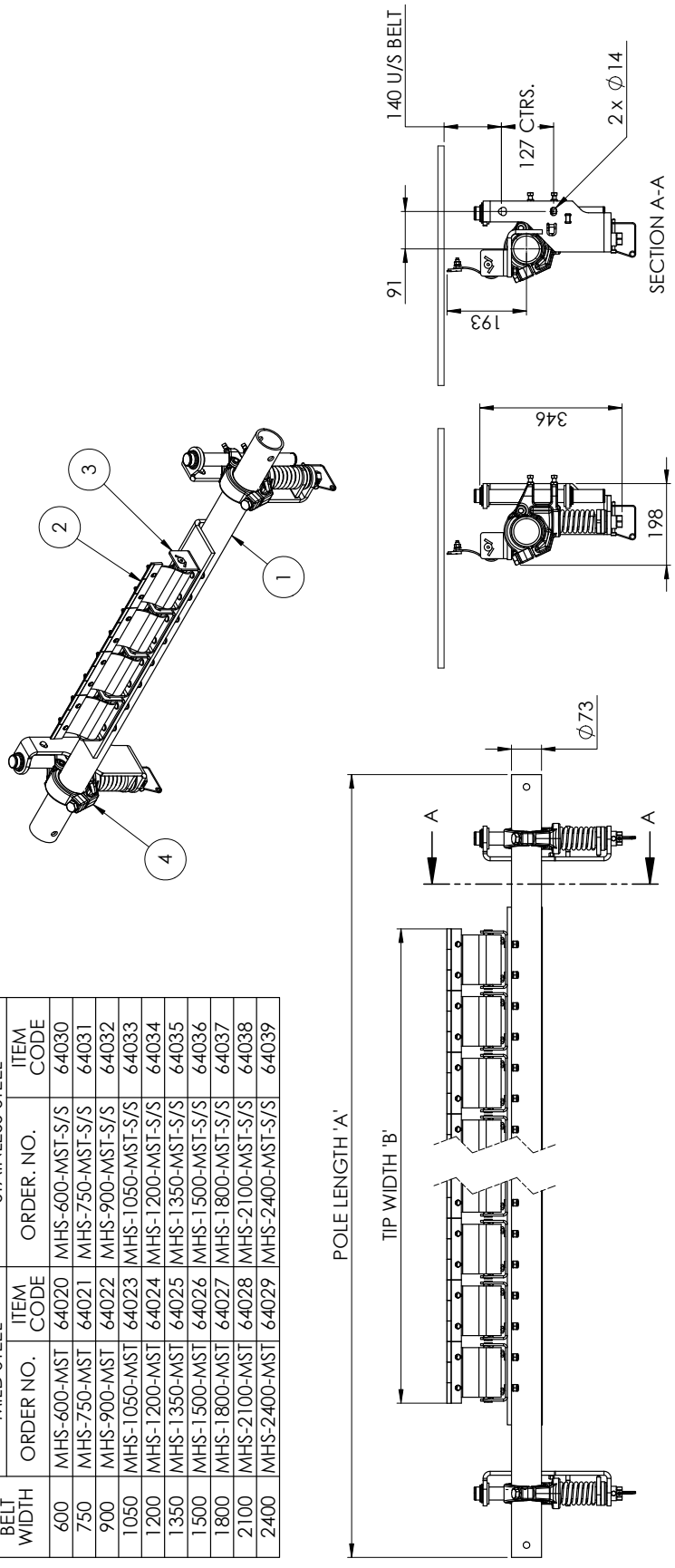
NO.	BELT WIDTH (mm)	MILD STEEL		STAINLESS STEEL		TIP WIDTH DIM 'A' (mm)	POLE LENGTH DIM 'B' (mm)
		ORDER NO.	ITEM CODE	ORDER NO.	ITEM CODE		
1	600	MHS-600FP	77769	MHS-600FP-S/S	77779	600	1350
2	750	MHS-750FP	77770	MHS-750FP-S/S	77780	750	1500
3	900	MHS-900FP	77771	MHS-900FP-S/S	77781	900	1650
4	1050	MHS-1050FP	77772	MHS-1050FP-S/S	77782	1050	1800
5	1200	MHS-1200FP	77773	MHS-1200FP-S/S	77783	1200	1950
6	1350	MHS-1350FP	77774	MHS-1350FP-S/S	77784	1350	2100
7	1500	MHS-1500FP	77775	MHS-1500FP-S/S	77785	1500	2350
8	1800	MHS-1800FP	77776	MHS-1800FP-S/S	77786	1800	2650
9	2100	MHS-2100FP	77777	MHS-2100FP-S/S	77787	2100	3200
10	2400	MHS-2400FP	77778	MHS-2400FP-S/S	77788	2400	3250

COMPLETE MHS-FP CLEANER - V TIPS

NO.	BELT WIDTH(mm)	MILD STEEL		STAINLESS STEEL		TIP WIDTH DIM 'A' (mm)	POLE LENGTH DIM 'B' (mm)
		ORDER NO.	ITEM CODE	ORDER NO.	ITEM CODE		
1	600	MHS-600FPV	77789	MHS-600FPV-S/S	77799	600	1350
2	750	MHS-750FPV	77790	MHS-750FPV-S/S	77800	750	1500
3	900	MHS-900FPV	77791	MHS-900FPV-S/S	77801	900	1650
4	1050	MHS-1050FPV	77792	MHS-1050FPV-S/S	77802	1050	1800
5	1200	MHS-1200FPV	77793	MHS-1200FPV-S/S	77803	1200	1950
6	1350	MHS-1350FPV	77794	MHS-1350FPV-S/S	77804	1350	2100
7	1500	MHS-1500FPV	77795	MHS-1500FPV-S/S	77805	1500	2350
8	1800	MHS-1800FPV	77796	MHS-1800FPV-S/S	77806	1800	2650
9	2100	MHS-2100FPV	77797	MHS-2100FPV-S/S	77807	2100	3200
10	2400	MHS-2400FPV	77798	MHS-2400FPV-S/S	77808	2400	3250

Section 8 - Specs and CAD Drawings

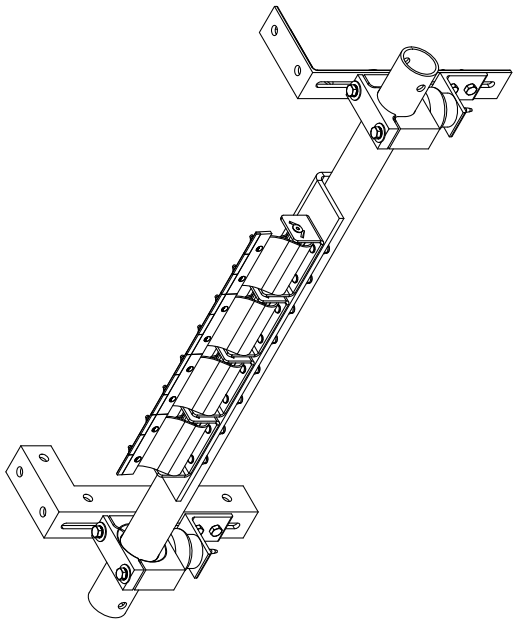
8.3 CAD Drawing - MHS with MST Tensioners

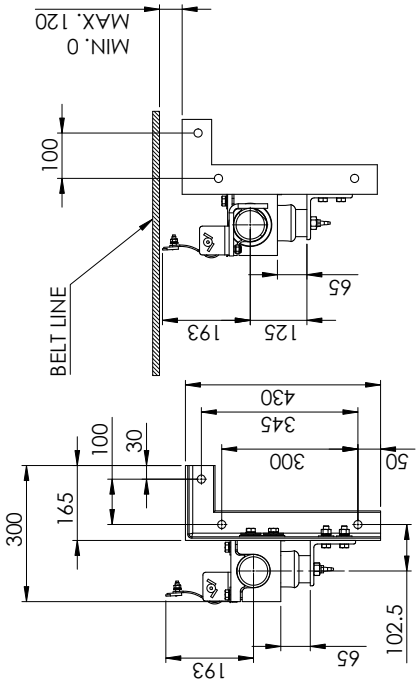


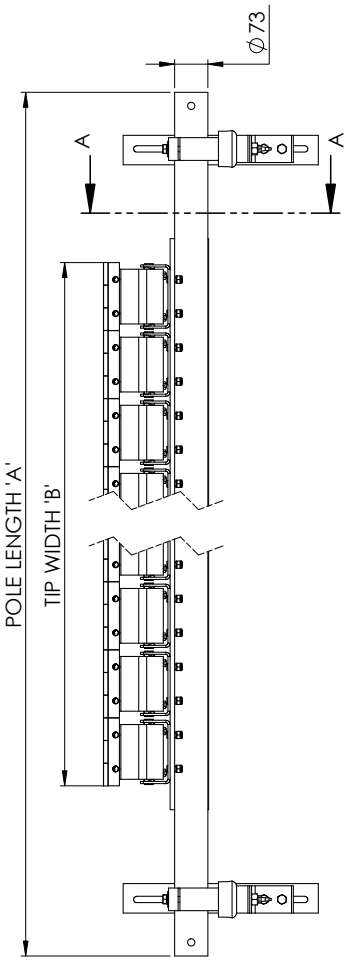
BELT WIDTH	MILD STEEL		STAINLESS STEEL	
	ORDER NO.	ITEM CODE	ORDER. NO.	ITEM CODE
600	MHS-600-MST	64020	MHS-600-MST-S/S	64030
750	MHS-750-MST	64021	MHS-750-MST-S/S	64031
900	MHS-900-MST	64022	MHS-900-MST-S/S	64032
1050	MHS-1050-MST	64023	MHS-1050-MST-S/S	64033
1200	MHS-1200-MST	64024	MHS-1200-MST-S/S	64034
1350	MHS-1350-MST	64025	MHS-1350-MST-S/S	64035
1500	MHS-1500-MST	64026	MHS-1500-MST-S/S	64036
1800	MHS-1800-MST	64027	MHS-1800-MST-S/S	64037
2100	MHS-2100-MST	64028	MHS-2100-MST-S/S	64038
2400	MHS-2400-MST	64029	MHS-2400-MST-S/S	64039

Section 8 - Specs and CAD Drawings

8.4 CAD Drawing - MHS with ATV Tensioners



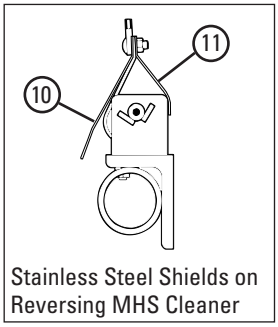




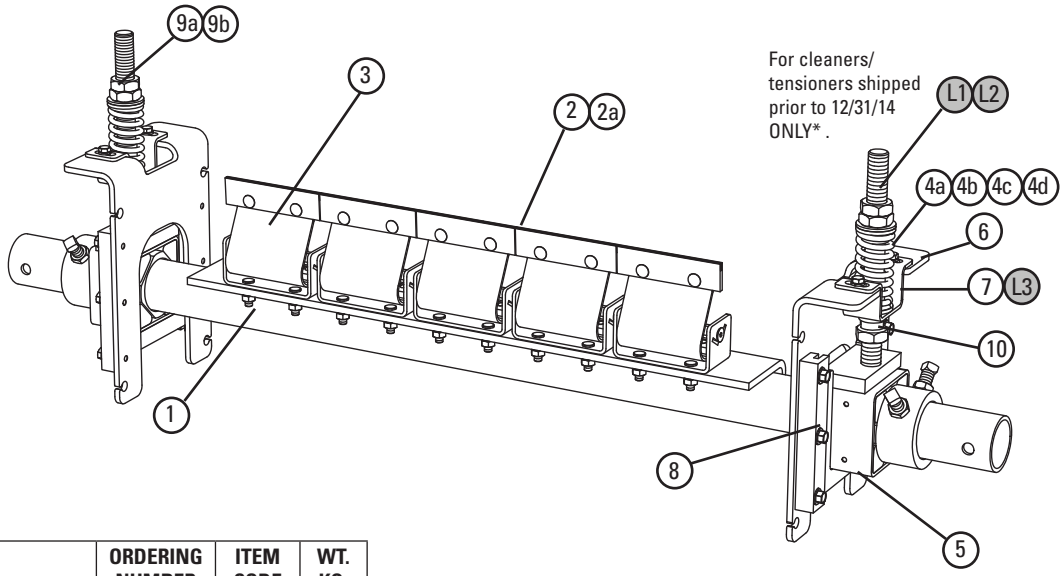
BELT WIDTH	STAINLESS STEEL		PRESSURE kPa (psi)
	ORDER. NO.	ITEM CODE	
600	MHS-600-ATV-S/S	CONTACT FLEXCO	270 (39)
750	MHS-750-ATV-S/S	CONTACT FLEXCO	284 (41)
900	MHS-900-ATV-S/S	CONTACT FLEXCO	298 (43)
1050	MHS-1050-ATV-S/S	CONTACT FLEXCO	311 (45)
1200	MHS-1200-ATV-S/S	CONTACT FLEXCO	325 (47)
1350	MHS-1350-ATV-S/S	CONTACT FLEXCO	339 (49)
1500	MHS-1500-ATV-S/S	CONTACT FLEXCO	353 (51)
1800	MHS-1800-ATV-S/S	CONTACT FLEXCO	380 (55)
2100	MHS-2100-ATV-S/S	CONTACT FLEXCO	409 (59
2400	MHS-2400-ATV-S/S	CONTACT FLEXCO	438 (63)

Section 9 - Replacement Parts

9.1 Replacement Parts List - MHS HD Secondary Cleaners (SST Tensioners)



Stainless Steel Shields on Reversing MHS Cleaner



Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG.
1	600mm Pole	MHS-P600	77499	23.5
	750mm Pole	MHS-P750	77500	25.9
	900mm Pole	MHS-P900	77501	28.5
	1050mm Pole	MHS-P1050	77502	31.0
	1200mm Pole	MHS-P1200	77527	33.5
	1350mm Pole	MHS-P1350	77503	36.0
	1500mm Pole	MHS-P1500	77504	38.6
	1800mm Pole	MHS-P1800	77505	43.6
	2100mm Pole	MHS-P2100	77506	50.8
	2400mm Pole	MHS-P2400	77507	58.1
2	C-Tip*	ICT6	74535	0.3
2a	V-Tip* (for vulcanized belts only)	RSA150	73628	0.6
3	PowerFlex™ Cushion* (complete)	PFC	75927	1.9
3a	PowerFlex Cushion* SS (complete)	PFC-SS	76560	1.9
4a	Tension Spring - White (1 ea.) for belts 450-750mm (18" - 30")	STS-W	75846	0.2
4b	Tension Spring - Silver (1 ea.) for belts 900-1200mm (36" - 48")	STS-S	75843	0.4
4c	Tension Spring - Black (1 ea.) for belts 1350-2100mm (54" - 84")	STS-B	75844	0.5
4d	Tension Spring - Gold (1 ea.) for belts 2400mm (96")	STS-G	78142	0.6
5	HD Torsion Pole Mount* (1 ea.) (includes HD adjusting rod, nuts & sleeve) (See 9 & 9a for bushings)	SSTHDPM	77868	6.8
6	HD Mounting Base Kit* (includes 1 mounting base, 2 slide guides, top hat bracket & bottom bushing)	SSTHDMK	77870	4.6
7	SST Hat Bracket (pair)	SSTHB	79582	1.4
8	Slide Guide Kit* (incl. 2 slide guides)	STGK2	77867	0.5
9a	SST Bushing Kit - White/Silver (includes 2 bushings)	SSTBK-W	76636	0.0
9b	SST Bushing Kit - Black/Gold (includes 2 bushings)	SSTBK-B	76637	0.0
10	SST Lower Bushing Kit (pair)	SSTLBK	79493	0.1
11	P Stainless Steel Shield	PSSS	74773	0.2
12	PowerFlex™ Reverse Shield	PFRS	76622	0.2
–	HD Spring Tensioner* - White includes 2 each items 4, 5, 6, & 9) for belts 450-750mm (18" - 30")	SST2HD-W	77879	27.5
–	HD Spring Tensioner* - Silver (includes 2 each items 4a, 5, 6, & 9) for belts 900-1200mm (36" - 48")	SST2HD-S	77880	27.9
–	HD Spring Tensioner* - Black (includes 2 each items 4b, 5, 6, & 9a) for belts 1350-2100mm (54" - 84")	SST2HD-B	77881	28.1
–	HD Spring Tensioner* - Gold (includes 2 each items 4c, 5, 6, & 9a) for belts 2400mm (96")	SST2HD-G	79041	28.4

*Hardware Included
Shaded items are made to order. Lead time 3 weeks.

Legacy Replacement Parts for Tensioners shipped prior to Dec. 31, 2014*

L1	Adjusting Rod Kit (includes 1 rod, 2 nuts, 1 bushing, 1 washer) for belts 600 - 1500mm (24" - 60")	STAK	75847	1.3
L2	HD Adjusting Rod Kit (includes 1 rod, 2 nuts, 1 HD bushing, 1 washer) for belts 1800 - 2100mm (72" - 84")	STAKHD	75892	1.4
L3	Legacy SST Hat Channel Kit	SSTHK	79070	0.7
L4	SAT2 Adjusting Rod Kit (2 ea.)	SAT2AK	78733	2.3
–	SST Tensioner Bushing Update Kit (includes 2 lower bushings, 2 sleeves, 2 nuts)	SST-BUK	76943	0.1

*Verify if legacy parts are needed by looking at threaded rod. If it has standard threads, use legacy parts. If it has flat/acme threads, choose from regular replacement parts.


Standard thread profile

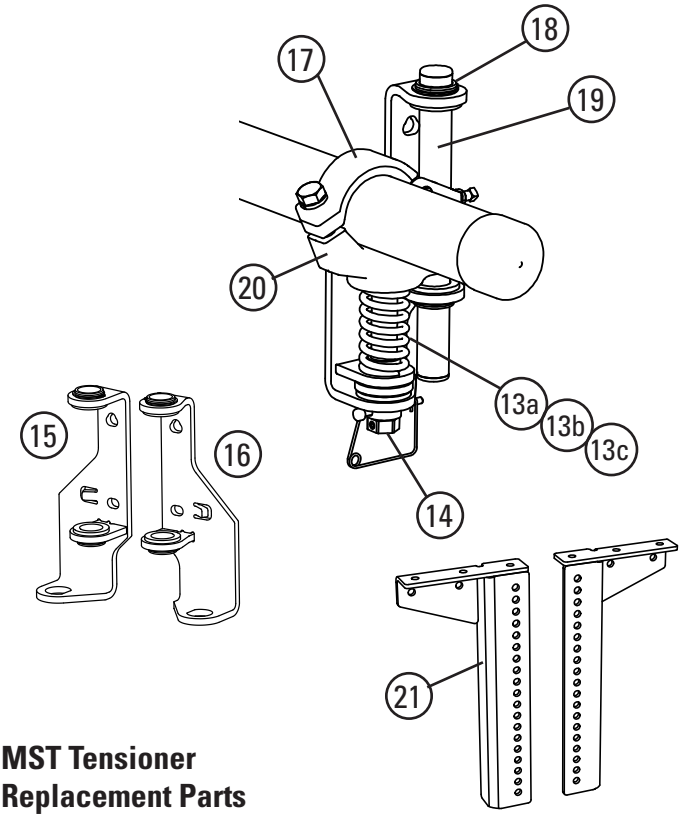

Acme/trapezoidal thread profile

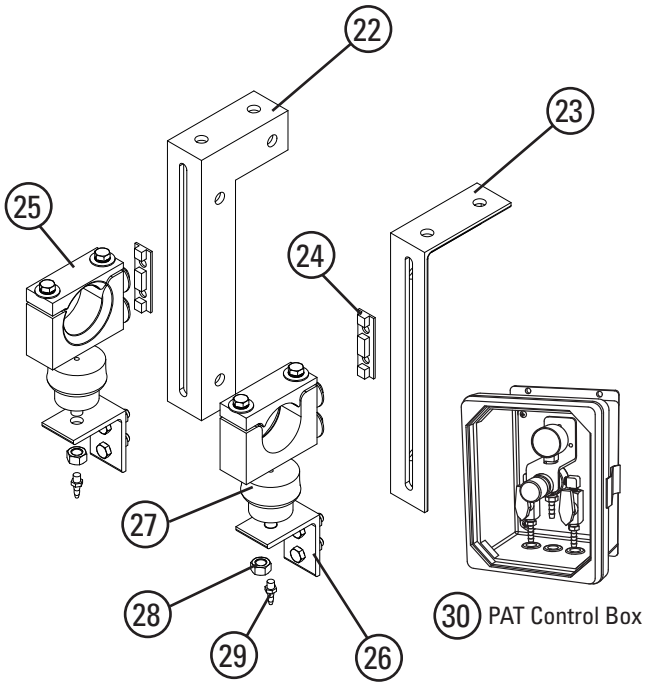
Spring Tensioner Selection Chart

CLEANER SIZE	77879 SST2HD-W	77880 SST2HD-S	77881 SST2HD-B	79041 SST2HD-G
MHS 450 - 750mm	X			
MHS 900 - 1500mm		X		
MHS 1800 - 2100mm			X	
MHS 2400mm				X

Section 9 - Replacement Parts

9.2 Replacement Parts List - MST and ATV Tensioners





MST Tensioner Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG.
13a	Tension Spring - White (1 ea.) for belts 450-750mm (18" - 30")	STS-W	75846	0.2
13b	Tension Spring - Silver (1 ea.) for belts 900-1350mm (36" - 54")	STS-S	75843	0.4
13c	Tension Spring - Black (1 ea.) for belts 1500-1800mm (60" - 72")	STS-B	75844	0.5
14	MST Adjusting Mechanism	MSTAM	79435	1.3
15	MST Mounting Bracket LH (incl. bushings)	MST-MBL	79436	2.6
16	MST Mounting Bracket RH (incl. bushings)	MST-MBR	79437	2.6
17	MST HD Clamp*	MSTCHD	79439	1.1
18	MST Bushing Kit (incl. 4 bushings)	MSTBK	79440	0.1
19	MST Guide Pole	MSTGT	79441	0.7
20	MST HD Pole Mount*	MSTPMHD	79451	3.3
21	MST Drop Brackets (2)	MSTDB	79434	12.6
-	MST HD Tensioner w/White Spring (incl. 1 ea. items 15, 16, 18; 2 ea. items 13a, 14, 17, 19, 20	MSTHD-W	79431	16.7
-	MST HD Tensioner w/Silver Spring (incl. 1 ea. items 15, 16, 18; 2 ea. items 13b, 14, 17, 19, 20	MSTHD-S	79432	17.0
-	MST HD Tensioner w/Black Spring (incl. 1 ea. items 15, 16, 18; 2 ea. items 13c, 14, 17, 19, 20	MSTHD-B	79433	17.3

*Hardware included
Shaded items are made to order. Lead time 3 weeks.

ATV Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG.
22	Mounting Bracket LH	PMBL-S/S	75518	3.8
23	Mounting Bracket RH	PMBR-S/S	75521	3.8
24	Air Tensioner Slider	ATV-SLIDE	62425	0.2
25	Air Tension Cradle Blocks 73mm Kit	ATV-MOUNT	63073	2.4
26	Air Tension Adjusting Angle	ATV-ANGLE	62426	1.0
27	Air Bag	ATV-BAG	62036	0.2
28	5/8" Hex Nut S/S	-	G1211	0.1
29	Air Line Adaptor	ATV-NIP	62037	0.1
30	PAT Control Box 100psi	PACB100	78683	5.0

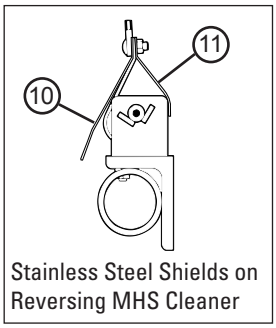
Shaded items are made to order. Lead time 3 weeks.

MST Spring Tensioner Selection Chart

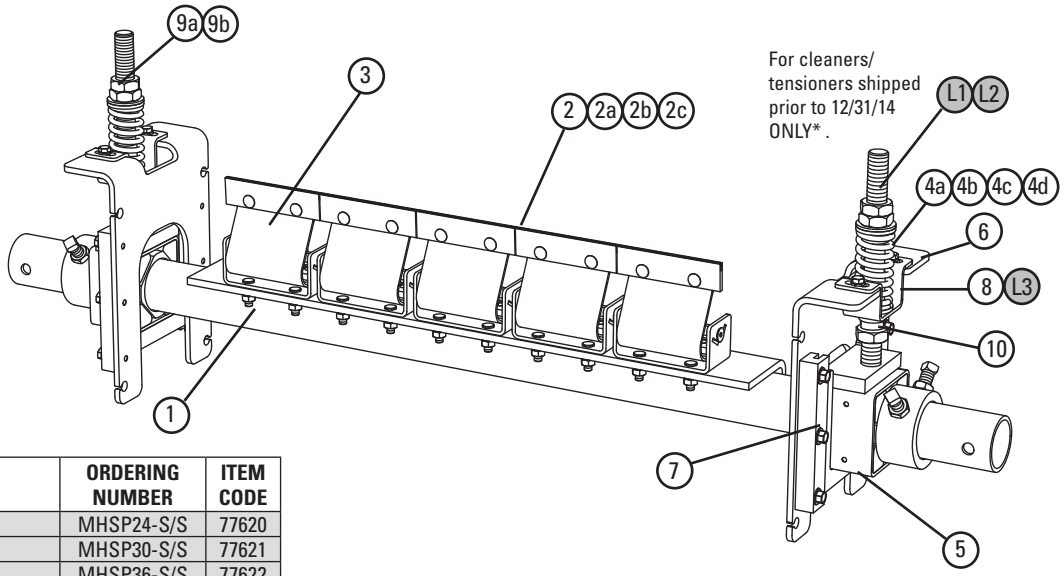
CLEANER SIZE	79431 MSTHD-W	79432 MSTHD-S	79433 MSTHD-B
MHS 450 - 750mm	X		
MHS 900 - 1350mm		X	
MHS 1500 - 1800mm			X

Section 9 - Replacement Parts

9.3 Replacement Parts List - Stainless Steel MHS Cleaners



Stainless Steel Shields on Reversing MHS Cleaner



Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
1	600mm SS Pole	MHSP24-S/S	77620
	750mm SS Pole	MHSP30-S/S	77621
	900mm SS Pole	MHSP36-S/S	77622
	1050mm SS Pole	MHSP42-S/S	77623
	1200mm SS Pole	MHSP48-S/S	77624
	1350mm SS Pole	MHSP54-S/S	77625
	1500mm SS Pole	MHSP60-S/S	77626
	1800mm SS Pole	MHSP72-S/S	77627
	2100mm SS Pole	MHSP84-S/S	77628
	2400mm SS Pole	MHSP96-S/S	79053
2	C-Tip*	ICT6	74535
2a	SS C-Tip	ICT6-S/S	78700
2b	V-Tip* (for vulcanized belts only)	RSA150	73628
2c	S/S V-Tip* (for vulcanized belts only)	RVT6-S/S	76205
3	PowerFlex Cushion* (complete)	PFC-SS	76560
4a	Tension Spring - White (1 ea.) for belts 450-750mm (18" - 30")	STS-W-S/S	77630
4b	Tension Spring - Silver (1 ea.) for belts 900-1200mm (36" - 48")	STS-S-S/S	77631
4c	Tension Spring - Black (1 ea.) for belts 1350-2100mm (54" - 84")	STS-B-S/S	77632
4d	Tension Spring - Gold (1 ea.) for belts 96" (2400)	STS-G-S/S	79057
5	SS HD Torsion Mounting Kit* (1 ea.) (includes adjusting rod, 3 nuts & sleeve) (See 9 & 9a for bushings)	STHDPM2-S/S	77633
6	SS Mounting Base Kit* (includes 1 mounting base, 2 slide guides, top hat bracket & bottom bushing	STHDMK2-S/S	77634
7	SS Base Mounting Kit* (includes 2 slide guides)	STGK2-S/S	77635
8	SST Hat Bracket S/S (pair)	SSTHB-S/S	79586
9a	SST Bushing Kit - White/Silver (includes 2 bushings)	SSTBK-W	76636
9b	SST Bushing Kit - Black/Gold (includes 2 bushings)	SSTBK-B	76637
10	SST Lower Bushing Kit (pair)	SSTLBK	79493
11	P Stainless Steel Shield	PSSS	74773
12	PowerFlex™ Reverse Shield	PFRS	76622
–	SS Spring Tensioner* - White (includes 2 each items 4, 5, 6 & 9) for belts 450-750mm (18" - 30")	SST2HD-W-S/S	77637
–	SS Spring Tensioner* - Silver (includes 2 each items 4a, 5, 6 & 9) for belts 900-1200mm (36" - 48")	SST2HD-S-S/S	77638
–	SS Spring Tensioner* - Black (includes 2 each items 4b, 5, 6 & 9a) for belts 1350-2100mm (54" - 84")	SST2HD-B-S/S	77639
–	SS Spring Tensioner* - Gold (includes 2 each items 4c, 5, 6 & 9a) for belts 2400mm (96")	SST2HD-G-S/S	79042

*Hardware Included
Lead time: 1 working day

Shaded items are made to order.
Lead time: 3 weeks

Legacy Replacement Parts for Tensioners shipped prior to changeover Dec. 31, 2014*

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
L1	Adjusting Rod Kit* (includes 1 rod, 2 nuts, 1 bushing, 1 washer) for belts 450 -1500mm (18" - 60")	STAK	75847
L2	HD Adjusting Rod Kit* (includes 1 rod, 2 nuts, 1 HD bushing, 1 washer) for belts 1800 - 2400mm (72" - 96")	STAKHD	75892
L3	SST Hat Channel Kit S/S	SSTHK-S/S	79071
–	SS Bushing Update Kit (includes 2 ea. lower bushings, sleeves, nuts)	SST-BUK-S/S	77636

*Verify if legacy parts are needed by looking at threaded rod. If it has standard threads, use legacy parts. If it has flat/ acme threads, choose from regular replacement parts.


Standard thread profile


Acme/trapezoidal thread profile

Spring Tensioner Selection Chart

CLEANER SIZE	77637 SSTHD-W-S/S	77638 SSTHD-S-S/S	77639 SSTHD-B-S/S	79042 SST2HD-G-S/S
MHS S/S 450 - 750mm	X			
MHS S/S 900 - 1200mm		X		
MHS S/S 1350 - 2100mm			X	
MHS S/S 2400mm				X

Section 10 - Other Flexco Conveyor Products

Flexco provides many conveyor products that help your conveyors to run more efficiently and safely. These components solve typical conveyor problems and improve productivity.
Here is a quick overview on just a few of them:

MMP Primary Cleaner

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

Flexco 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

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

PT Max™ Belt Trainer

- Patented "pivot & tilt" design for superior training action
- Dual sensor rollers on each side to minimise 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

Belt Ploughs

- 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.

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