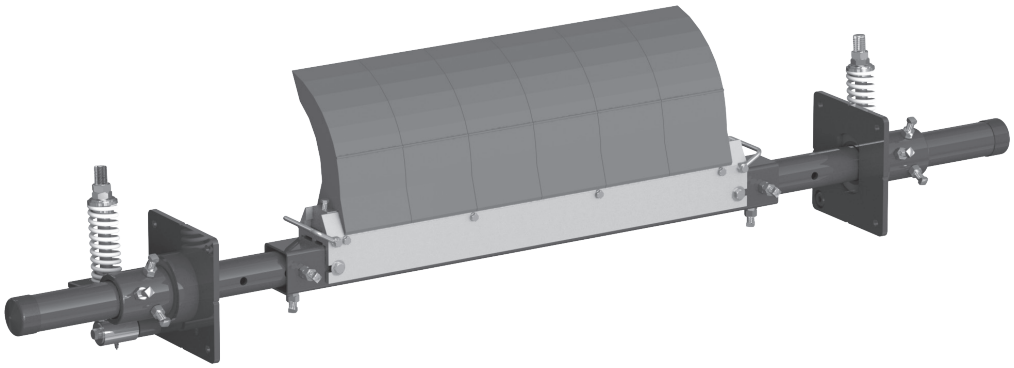
MHCP Precleaner

Installation, Operation and Maintenance Manual



FLEXCO

Serial Number: _____

Purchase Date: _____

Purchased From:_____

Installation Date:_____

Serial number information can be found on the Serial Number Label included in the Information Packet found in the cleaner carton.

This information will be helpful for any future inquiries or questions about belt cleaner replacement parts, specifications or troubleshooting.

Table of Contents

Section 1 – Important Information

1.1 General Introduction

We at Flexco are very pleased that you have selected a MHCP Precleaner for your conveyor system.

This manual will help you to understand the operation of this product and assist you in making it work up to its maximum efficiency over its lifetime of service.

It is essential for safe and efficient operation that the information and guidelines presented be properly understood and implemented. This manual will provide safety precautions, installation instructions, maintenance procedures and troubleshooting tips.

If, however, you have any questions or problems that are not covered, please visit our web site or contact our Customer Service Department.

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 MHCP Precleaner 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 MHCP Precleaner, it is important to review and understand the following s afety information.

There are set-up, maintenance and operational activities involving both **stationary** and **operating** conveyors. Each case has a safety protocol.

2.1 Stationary Conveyors

The following activities are performed on stationary conveyors:

- Installation
- Blade replacement
- Repairs
- Tension adjustments
- Cleaning

⚠ DANGER

It is imperative that OSHA/MSHA Lockout/Tagout (LOTO) regulations, 29 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.

⚠ 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 cause instantaneous amputation and entrapment.

⚠ 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.

⚠ WARNING

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.

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?
  - Are there obstructions that may require cleaner location adjustments? (see 3.2 - Cleaner Location Adjustment)
  - Is the install on an open head pulley requiring mounting structure? (see 3.3 - Optional Installation Accessories)

Section 3 – Pre-Installation Checks and Options

3.2 Cleaner Location Adjustments

In certain applications it is necessary to modify the location of the precleaner pole due to permanent obstacles that obstruct the desired location. Relocating the pole location can be done easily and does not hinder the performance of the cleaner as long as the "C" dimension is maintained.

NOTE: In the following example we will be lowering the pole location in the "Y" direction, but the same method could also be applied in the "X" direction.

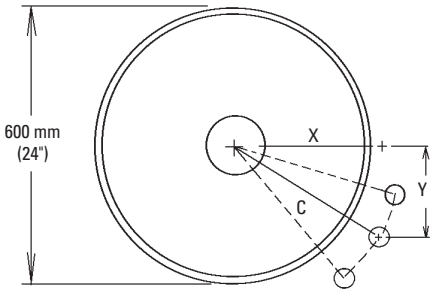
Conveyor situation:

Pulley Diameter: 600 mm (24")

X = 321 mm (12 5/8")

Y = 300 mm (12")

C = 441 mm (17 3/8")



1. **Determine the given location dimensions and define the change needed.** After laying out the given X & Y dimensions, determine the distance of the modification required for adequate clearance of the pole and tensioning system. (In the example we decide to lower the pole 50 mm (2") to clear the support structure).

2. **Write down known dimensions.** We can now determine two of the three required dimension which will allow us to find the third. We know we cannot alter the "C" dimension, so this will remain the same. Also we are required to lower the unit in the "Y" dimension 50 mm (2"), so we add 50 mm (2") to the given "Y" dimension.

   X = ? mm (?")

   Y = 300 + 50 = 350 mm (12 + 2 = 14")

   C = 441 mm (17 3/8")

3. **Determine final dimension.** On a flat vertical surface, using a level, draw one horizontal line and one vertical line creating a right triangle (Fig 3a). Measure down from the intersection the determined "Y" dimension and mark (Fig 3b). With the tape measure starting at the modified "Y" mark, swing the tape across the "X" line and mark at the "C" dimension where it crosses the "X" line (Fig 3c). Measure from the intersection to the "C" intersection and this will be your new "X" dimension (Fig. 3d).

   X = 254 mm (10 1/4")

   Y = 350 mm (14")

   C = 441 mm (17 3/8")

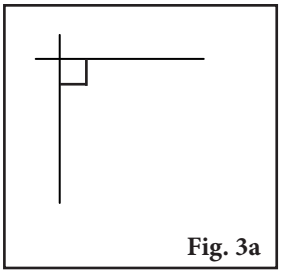


Fig. 3a

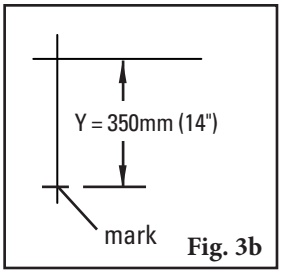


Fig. 3b

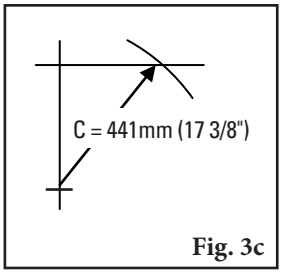


Fig. 3c

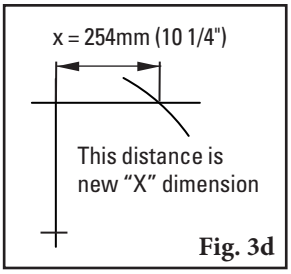


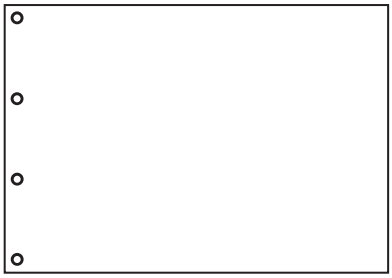
Fig. 3d

Section 3 - Pre-Installation Checks and Options

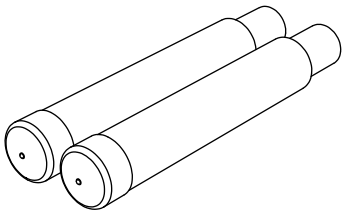
3.3 Optional Installation Accessories

Versatile, adjustable brackets and plates that can be mounted on the conveyor structure so precleaners and secondary cleaners can be easily and quickly bolted into place.

Optional Mounting Bar Kit (incl. bolts, nuts and washers)
(Item Code: 75830)
- For mounting precleaners on open head pulleys.
- Weld on both sides of pulley and bolt on steel plates.
- 38 x 405 mm (1 1/2 x 16") with (4) 16 mm (5/8") tapped holes



Mounting Plate Kit (incl. 2 plates)
(Item Code: 76537)
- For use with Mounting Bars to mount cleaners on open head pulleys.
- 400 x 800 mm (16 x 32") with (4) 16 mm (5/8") holes



Pole Extender Kit (incl. 2 pole extenders)
(Item Code: 76024)
- For cleaner sizes 1800 mm (72") and larger
- Provides 750 mm (30") of extended pole length

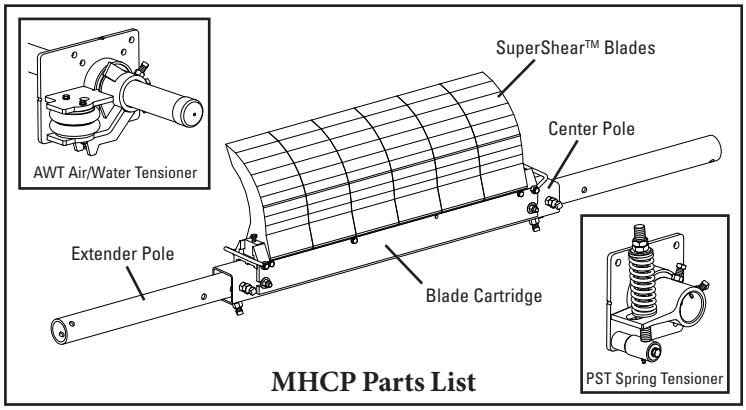
Optional Mounting Kits (includes 2 brackets/bars)

DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT KG
Optional Mounting Bar Kit *	MMBK	75830	8.8
Mounting Plate Kit (incl. 2 plates)	MMPK	76537	63.5
Pole Extender Kit	MAPEK	76024	9.9

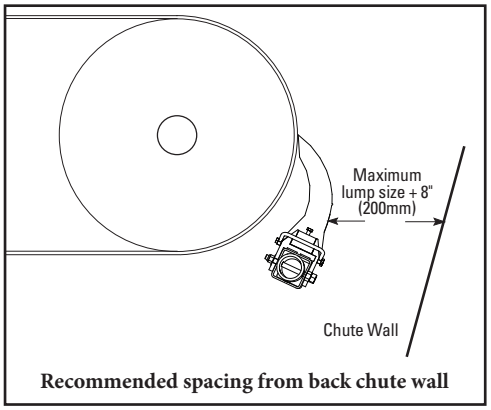
*Hardware Included
Lead time: 1 working day

Section 4 – Installation Instructions

4.1 MHCP Precleaner



MHCP Parts List



Recommended spacing from back chute wall

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

CAUTION: Components may be heavy. Use safety-approved lifting procedures.

Section 4 – Installation Instructions

4.1 MHCP Precleaner

Tools Needed:

- Tape Measure
- Wrenches or Crescent Wrenches: (2) 19mm (3/4"), (2) 38mm (1-1/2"), (1) 24mm (15/16"), and (1) 16mm (5/8")
- C-clamps for AWT only

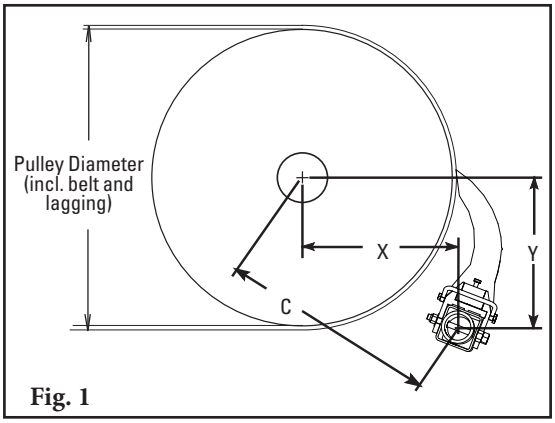


Fig. 1

1. **Find the X, Y & C specifications.** Measure the pulley diameter (including the belt and the lagging) (Fig. 1).
   Pulley Diameter _____"; X=_____"; Y=_____";
   C=_____".

   (Adjustments can be made to the X & Y coordinates to move away from obstacles as long as the C dimension remains constant.)

Number of Blades per Cleaner Size

mm	600	750	900	1050	1200	1350	1500	1800	2100	2400	2550	2700	3000
in	24	30	36	42	48	54	60	72	84	96	102	108	120
Blades	4	5	6	7	8	9	10	12	14	16	17	18	19

X & Y Chart for Pole Location

Pulley Diameter		X		Y		C	
mm	in	mm	in	mm	in	mm	in
500	20	250	10	365	14 3/8	442	17 1/2
525	21	263	10 1/2	365	14 3/8	450	17 3/4
550	22	275	11	365	14 3/8	457	18 1/8
575	23	288	11 1/2	365	14 3/8	465	18 3/8
600	24	300	12	365	14 3/8	472	18 3/4
625	25	313	12 1/2	365	14 3/8	480	19
650	26	325	13	365	14 3/8	489	19 3/8
675	27	338	13 1/2	365	14 3/8	497	19 3/4
700	28	350	14	365	14 3/8	506	20 1/8
725	29	363	14 1/2	365	14 3/8	514	20 3/8
750	30	375	15	365	14 3/8	523	20 3/4
775	31	388	15 1/2	365	14 3/8	532	21 1/8
800	32	400	16	365	14 3/8	542	21 1/2
825	33	413	16 1/2	365	14 3/8	551	21 7/8
850	34	425	17	365	14 3/8	560	22 1/4
875	35	438	17 1/2	365	14 3/8	570	22 5/8
900	36	450	18	365	14 3/8	579	23
925	37	463	18 1/2	365	14 3/8	589	23 3/8
950	38	475	19	365	14 3/8	599	23 7/8
975	39	488	19 1/2	365	14 3/8	609	24 1/4
1000	40	500	20	365	14 3/8	619	24 5/8
1025	41	513	20 1/2	365	14 3/8	629	25
1050	42	525	21	365	14 3/8	639	25 1/2
1075	43	538	21 1/2	365	14 3/8	650	25 7/8
1100	44	550	22 1/4	365	14 3/8	660	26 1/2
1125	45	563	22 7/8	365	14 3/8	671	27
1150	46	575	23 1/2	365	14 3/8	681	27 1/2
1175	47	588	24	365	14 3/8	692	28
1200	48	600	24 5/8	365	14 3/8	702	28 1/2

X & Y Chart for Pole Location

Pulley Diameter		X		Y		C	
mm	in	mm	in	mm	in	mm	in
1225	49	613	25 1/8	365	14 3/8	714	29
1250	50	628	25 3/4	365	14 3/8	727	29 1/2
1275	51	641	26 3/8	365	14 3/8	738	30
1300	52	657	26 7/8	365	14 3/8	752	30 1/2
1325	53	672	27 1/2	365	14 3/8	765	31
1350	54	685	28	365	14 3/8	776	31 1/2
1375	55	700	28 5/8	365	14 3/8	790	32
1400	56	713	29 1/8	365	14 3/8	801	32 1/2
1425	57	728	29 3/4	365	14 3/8	815	33
1450	58	741	30 1/4	365	14 3/8	826	33 1/2
1475	59	757	30 3/4	365	14 3/8	840	34
1500	60	769	31 3/8	365	14 3/8	851	34 1/2
1525	61	782	31 7/8	365	14 3/8	863	35
1550	62	797	32 1/2	365	14 3/8	877	35 1/2
1575	63	810	33	365	14 3/8	888	36
1600	64	826	33 1/2	365	14 3/8	903	36 1/2
1625	65	838	34 1/8	365	14 3/8	914	37
1650	66	850	34 5/8	365	14 3/8	925	37 1/2
1675	67	866	35 1/8	365	14 3/8	940	38
1700	68	879	35 3/4	365	14 3/8	951	38 1/2
1725	69	891	36 1/4	365	14 3/8	963	39
1750	70	906	36 3/4	365	14 3/8	977	39 1/2
1775	71	919	37 3/8	365	14 3/8	989	40
1800	72	932	37 7/8	365	14 3/8	1001	40 1/2
1825	73	947	38 3/8	365	14 3/8	1015	41
1850	74	960	38 7/8	365	14 3/8	1027	41 1/2
1875	75	972	39 1/2	365	14 3/8	1039	42
1900	76	985	40	365	14 3/8	1050	42 1/2
1925	77	1000	40 1/2	365	14 3/8	1064	43
1950	78	1013	41	365	14 3/8	1077	43 1/2
1975	79	1026	41 5/8	365	14 3/8	1089	44
2000	80	1038	42 1/8	365	14 3/8	1100	44 1/2
2025	81	1053	42 5/8	365	14 3/8	1114	45
2050	82	1066	43 1/8	365	14 3/8	1127	45 1/2
2075	83	1079	43 3/4	365	14 3/8	1139	46
2100	84	1090	44 1/4	365	14 3/8	1150	46 1/2

Section 4 – Installation Instructions

4. 1 MHCP Precleaner

2. **Lay out the dimensions on the chute wall.** Measure out the X dimension horizontally from the center of the pulley shaft and mark.

   NOTE: It may be easier to put a level on top of the pulley shaft, draw a horizontal line and then measure down half the diameter of the shaft and make a line from the front of the shaft.

   Now subtract half the pulley shaft diameter from the X coordinate and measure on the line and make a mark. Then measure down vertically the Y dimension and mark. This is the correct position for the center of the cleaner pole (Fig. 2). Lay out and mark the same dimensions on the other side.

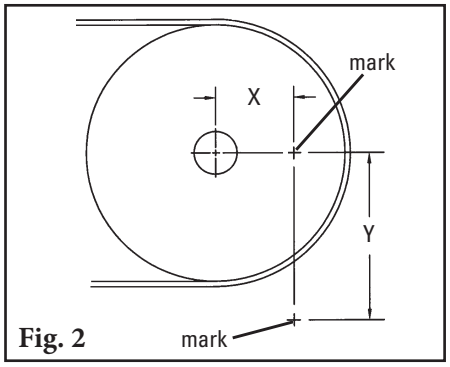
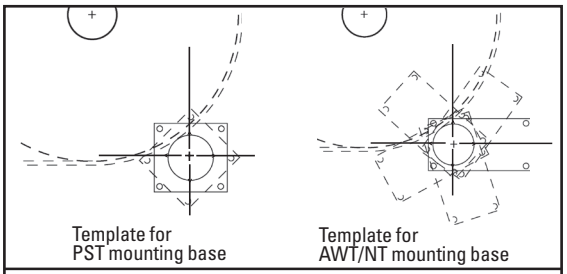


Fig. 2

3. **Mark and cut the mounting base holes.** Using the mounting base template provided in the instruction packet, position the large pole hole of the template on the chute with the hole notches aligned with the layout lines. Trace the pole hole and mounting holes (Fig. 3). Each base can be mounted in any position 360° around the pole as long as the pole's center point does not change. Cut the holes on both sides of the chute.



Center large template hole notches on pole center mark, rotate to desired angle and trace holes.
Fig. 3

4. **Assemble the extender poles to the center pole.** Insert the extender poles through the chute holes and into the center pole and make sure the locating bolt holes align with the center pole holes (holes are offset to the lower half). Position the center pole with the welded nuts and locking bolts on one side facing down and on the adjoining side facing away from the head pulley (Fig. 4). Leave the locking bolts loose.

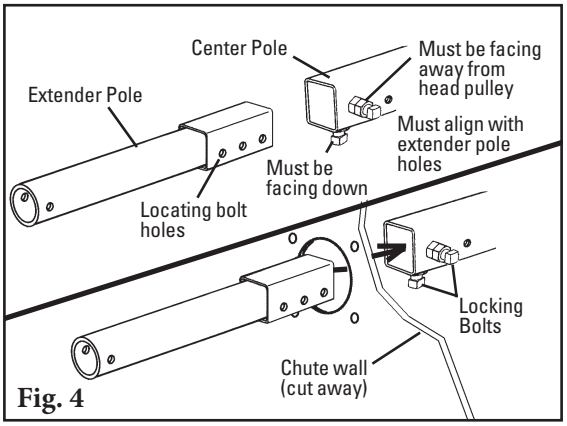


Fig. 4

5. **Install the mounting bases.** Bolt the mounting bases to the chute with the bolts provided (Fig. 5).

6. **Install the blade cartridge.** Place the blade cartridge onto the center pole. Adjust the extender poles until the holes align with the holes in the center pole and lock the cartridge into place with the two bolts, washers and nuts (Fig. 6).

   NOTE: Be sure at least 150 mm (6") of the extender pole extends out of the mounting base on each side for tensioner installation. Adjust the extender poles in the center pole if more or less length is needed.

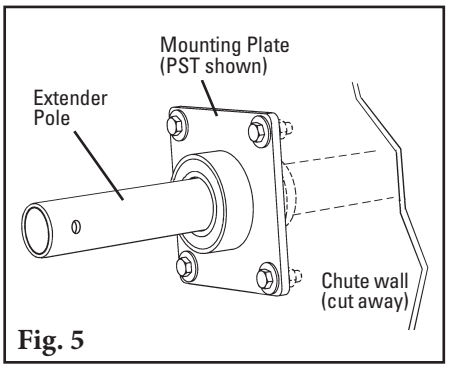


Fig. 5

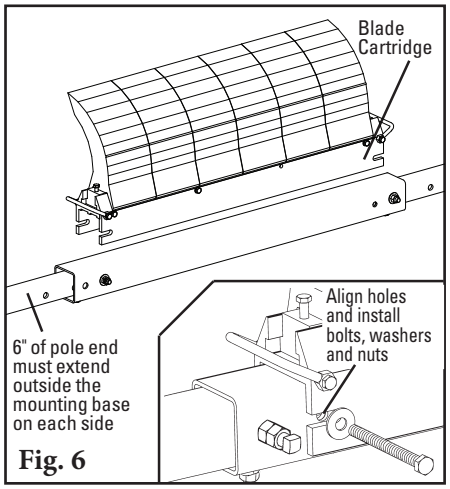


Fig. 6

Section 4 – Installation Instructions

4.1 MHCP Precleaner

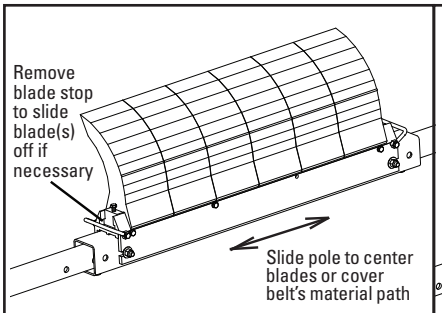


Fig. 7

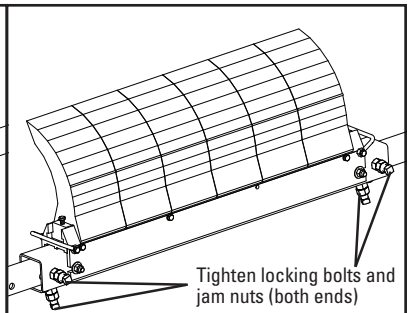


Fig. 8

7. **Center the blades on the belt.** Slide the pole until the blades are centered or cover the belt's material path (Fig. 7).

   NOTE: Standard blade coverage is belt width minus 150 mm (6"). If less blade coverage is required, single blades can be removed from the blade cartridge. The blades do not have to be centered in the cartridge. They should be centered on the belt's material path.

8. **Lock the extender poles in the center pole.** Tighten the two locking bolts and jam nuts on each end of the center pole (Fig. 8).

   Install the tensioning system. For the PST Spring Tensioner go to step 9S. For the PAT Tensioner proceed to step 9P.

Precleaner Spring Tensioner (PST)

9S. Install the torque pivot rod. Remove the adjusting nuts and springs from the rods. The pivot rod base can be installed in any of the four mounting plate holes. Determine the rotation desired. Insert the pivot rod mounting bolt through the chute wall, mounting plate and into the pivot rod base and tighten (Fig. 9S).

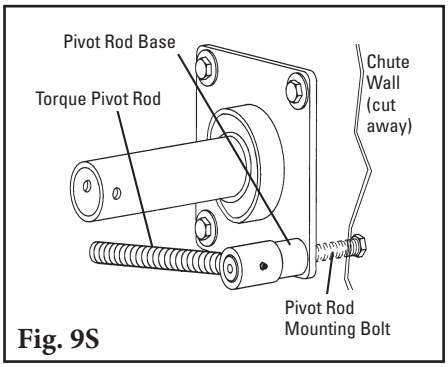


Fig. 9S

10S. Slide the torque arm onto the pole end. Again ensuring the correct pulling rotation, put the torque arm onto the pole end and rotate it around until the torque pivot rod slides through the slot (Fig. 10S).

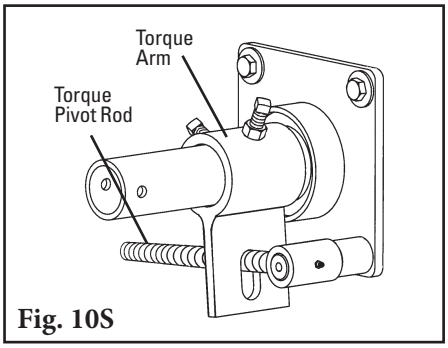


Fig. 10S

11S. Reassemble the spring assembly. Slide the spring, washer and bushings onto the pivot rod and turn the two adjusting nuts so about 6 mm (1/4") of the rod is exposed above the nuts (Fig. 11S). Complete steps 9S through 11S on the other side.

12S. Tension the blades to the belt. Rotate the blades until they contact the belt. While holding the spring bushing flat on the torque arm, rotate the torque arm until the pivot rod is against the end of the slot nearest the pole. Tighten the locking bolts and jam nuts on the torque arm (Fig. 12S).

NOTE: The torque arm should be up against the mounting base.

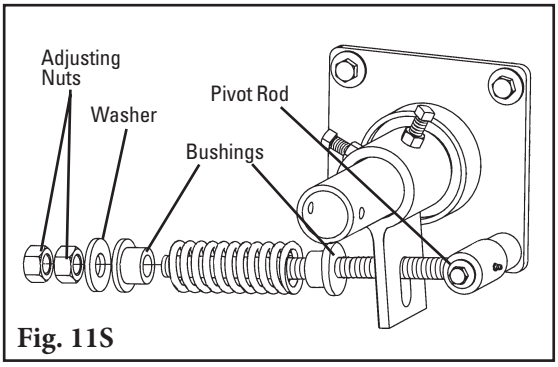


Fig. 11S

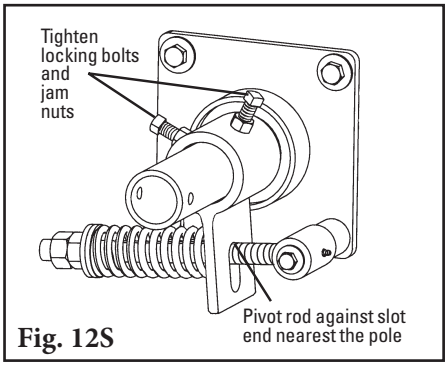


Fig. 12S

Section 4 – Installation Instructions

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13S. Set the correct blade tension. Refer to the chart or the decal on the mounting base for the spring length required for the belt width. Lightly pull the pivot rod toward the end of the torque arm slot nearest the pole and turn the adjusting nuts until the required spring length is achieved. Complete steps 12S and 13S on the other side. For best results, recheck the spring length on the first side to insure there has been no movement.

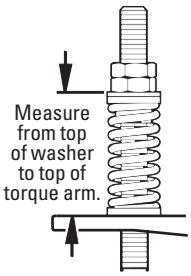
14S. Test run the cleaner. Run the conveyor for at least 15 minutes and inspect the cleaning performance. Check the spring lengths for proper tensioning. Make adjustments as necessary.

PST Spring Length Chart

Blade Width		No. Blades	White Springs		Silver Springs		Red Springs	
mm	in.		mm	in.	mm	in.	mm	in.
450	18	3	143	5 5/8	N/A	N/A	N/A	N/A
600	24	4	137	5 3/8	159	6 1/4	N/A	N/A
750	30	5	127	5	156	6 1/8	159	6 1/4
900	36	6	121	4 3/4	152	6	159	6 1/4
1050	42	7	N/A	N/A	152	6	156	6 1/8
1200	48	8	N/A	N/A	149	5 7/8	156	6 1/8
1350	54	9	N/A	N/A	146	5 3/4	152	6
1500	60	10	N/A	N/A	143	5 5/8	152	6
1650	66	11	N/A	N/A	143	5 5/8	149	5 7/8
1800	72	12	N/A	N/A	140	5 1/2	149	5 7/8
1950	78	13	N/A	N/A	137	5 3/8	146	5 3/4
2100	84	14	N/A	N/A	N/A	N/A	146	5 3/4
2250	90	15	N/A	N/A	N/A	N/A	143	5 5/8
2400	96	16	N/A	N/A	N/A	N/A	143	5 5/8
2550	102	17	N/A	N/A	N/A	N/A	140	5 1/2
2700	108	18	N/A	N/A	N/A	N/A	140	5 1/2
2850	114	19	N/A	N/A	N/A	N/A	137	5 3/8

Shading indicates preferred spring option.

Spring tension is based on the number of blades on the cleaner, not the belt width.



Pneumatic Air Tensioner (PAT)

NOTE: Tensioners are shipped with the air bags and torque arms attached to the mounting bases.

9P. Tension the blades to the belt. Collapse both air bags (with C-clamps) and rotate the blades until they are 25 mm (1") short of contact with the belt. Tighten the torque arm locking bolts and jam nuts (Fig. 9P).

10P. 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 PAT control box (Fig. 10P).

NOTE: Be sure lines are safely away from the belt. Connect a 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 on the control box (also shown below). Take the pressure chart label from the instruction packet and affix it in an easily accessible location near the regulator for future reference.

11P. Test run the cleaner. Run the conveyor for at least 15 minutes and inspect the cleaning performance. Make adjustments as necessary.

PAT Pressure Chart

Blade Width		No. Blades	Pressure	
mm	in.		kPa	psi
450	18	3	55	8
600	24	4	69	10
750	30	5	90	13
900	36	6	103	15
1050	42	7	124	18
1200	48	8	138	20
1350	54	9	159	23
1500	60	10	172	25
1650	66	11	193	28
1800	72	12	214	31
1950	78	13	228	33
2100	84	14	248	36
2250	90	15	262	38
2400	96	16	283	41
2550	102	17	296	43
2700	108	18	317	46
2850	114	19	331	48

*kPa setting is based on number of blades, not belt width.

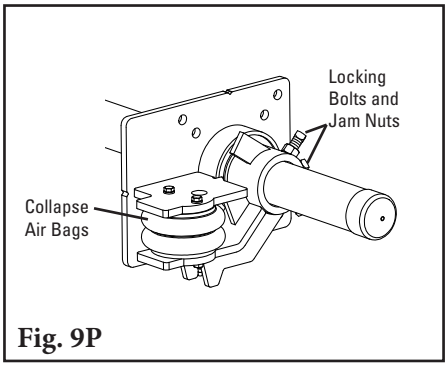
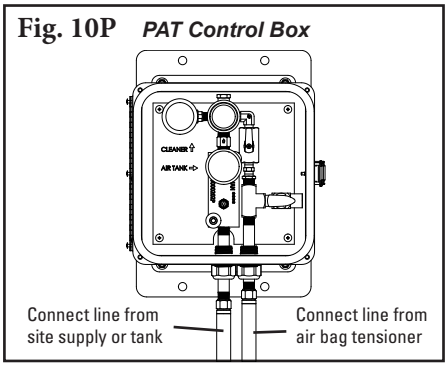


Fig. 9P

Fig. 10P *PAT Control Box*



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.
- Re-check tension settings.

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 MHCP Precleaner 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 can determine:

- If the spring length is the correct length for optimal tensioning.
- If the belt looks clean or if there are areas that are dirty.
- If the blade is worn out and needs to be replaced.
- If there is damage to the blade or other cleaner components.
- If fugitive material is built up on the 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.

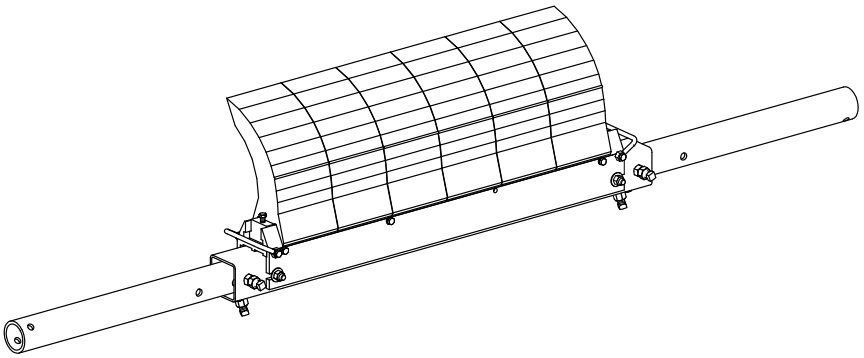
If any of the above conditions exist, a determination should be made on when the conveyor can be stopped for cleaner maintenance.

6.3 Routine Physical Inspection (every 6-8 weeks)

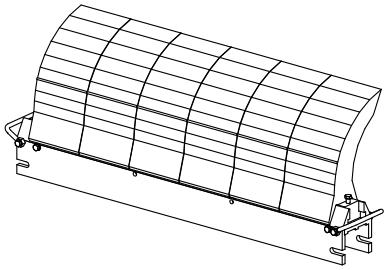
When the conveyor is not in operation and properly locked and tagged out a physical inspection of the cleaner to perform the following tasks:

- 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/pressure of the cleaner blade to the belt. Adjust the tension if necessary using the chart on the cleaner or the ones on Page 12.
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing properly.

6.4 Blade Replacement Instructions



MHCP Precleaner



SuperShear™ Replacement Blade and Cartridge

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

Tools Needed:

- Tape Measure
- Wrenches or Crescent Wrenches:
  (2) 19mm (3/4"), 17mm (11/16"), (1) 14mm (9/16")
- Wire Brush (for cleaning pole)
- Small Putty Knife (for cleaning pole)

1. **Remove the tension.** Loosen the adjusting nuts on both sides and turn them out until they are flush with ends of the pivot arm (Fig. 1) or release pressure from PAT control unit. This releases the tension of the blade on the belt.

2. **Remove the worn blade cartridge.** Remove two bolts on each end of cartridge and remove the cartridge from the pole (Fig. 2). Clean all fugitive material from the pole.

   NOTE: If cartridge is hard to remove use a screwdriver or hammer to loosen it and then remove.

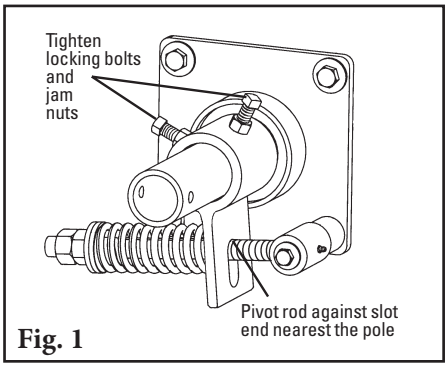


Fig. 1

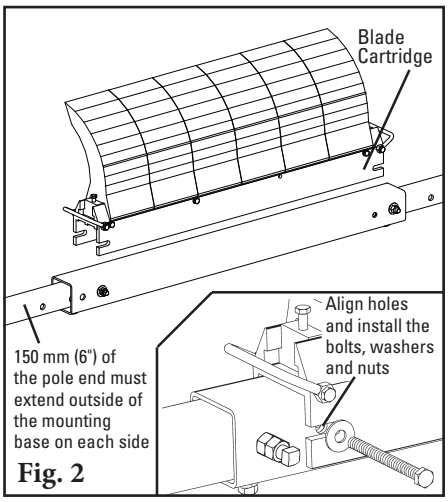


Fig. 2

6.4 Blade Replacement Instructions

3. **Change blades on cartridge.** Be sure to install all new blades to ensure even cleaning. To remove the blades, unlock the blade stop, remove the handle and loosen the cartridge expansion bolts. Clean the cartridge before installing the new blades. Install the new blades then tighten the cartridge expansion bolts and reinstall the blade stop handle (Fig. 3).

4. **Install the new cartridge.** Slide new cartridge onto the pole. Align the holes on the pole and cartridge then install the bolts, washers and nuts to lock in the cartridge (Fig. 4).

5. **Reset the correct blade tension.** Refer to the charts below for the recommended spring length and PSI required for the belt width. For PST, lightly pull the pivot arm toward the end of the torque arm slot nearest the pole and turn the adjusting nuts until the required spring length is achieved. Tighten jam nut.

   NOTE: The chart is also on the cleaner's pivot shaft bracket for future reference for retensioning maintenance.

   Test run the cleaner. Run the conveyor for at least 15 minutes and inspect the cleaning performance. Check the spring length for proper tensioning. Make adjustments as necessary.

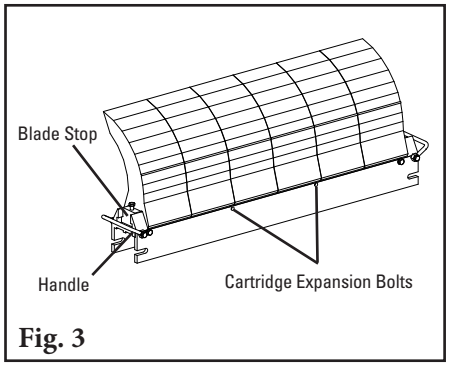


Fig. 3

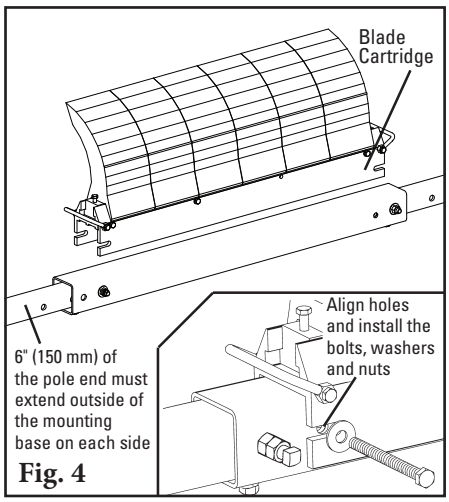


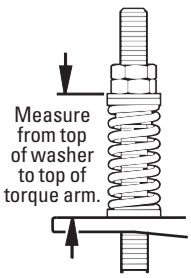
Fig. 4

PST Spring Length Chart

Blade Width		No. Blades	White Springs		Silver Springs		Red Springs	
mm	in.		mm	in.	mm	in.	mm	in.
450	18	3	143	5 5/8	N/A	N/A	N/A	N/A
600	24	4	137	5 3/8	159	6 1/4	N/A	N/A
750	30	5	127	5	156	6 1/8	159	6 1/4
900	36	6	121	4 3/4	152	6	159	6 1/4
1050	42	7	N/A	N/A	152	6	156	6 1/8
1200	48	8	N/A	N/A	149	5 7/8	156	6 1/8
1350	54	9	N/A	N/A	146	5 3/4	152	6
1500	60	10	N/A	N/A	143	5 5/8	152	6
1650	66	11	N/A	N/A	143	5 5/8	149	5 7/8
1800	72	12	N/A	N/A	140	5 1/2	149	5 7/8
1950	78	13	N/A	N/A	137	5 3/8	146	5 3/4
2100	84	14	N/A	N/A	N/A	N/A	146	5 3/4
2250	90	15	N/A	N/A	N/A	N/A	143	5 5/8
2400	96	16	N/A	N/A	N/A	N/A	143	5 5/8
2550	102	17	N/A	N/A	N/A	N/A	140	5 1/2
2700	108	18	N/A	N/A	N/A	N/A	140	5 1/2
2850	114	19	N/A	N/A	N/A	N/A	137	5 3/8

Shading indicates preferred spring option.

Spring tension is based on the number of blades on the cleaner, not the belt width.



PAT Pressure Chart

Blade Width		No. Blades	Pressure	
mm	in.		kPa	psi
450	18	3	55	8
600	24	4	69	10
750	30	5	90	13
900	36	6	103	15
1050	42	7	124	18
1200	48	8	138	20
1350	54	9	159	23
1500	60	10	172	25
1650	66	11	193	28
1800	72	12	214	31
1950	78	13	228	33
2100	84	14	248	36
2250	90	15	262	38
2400	96	16	283	41
2550	102	17	296	43
2700	108	18	317	46
2850	114	19	331	48

*kPa setting is based on number of blades, not belt width.

6.5 Maintenance Log

Conveyor Name/No. _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

Section 6 – Maintenance

6.6 Cleaner Maintenance Checklist

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

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

Beltline Information:

Beltline Number: _____ Belt Condition: _____

Belt Width: ☐ 450mm (18") ☐ 600mm (24") ☐ 750mm (30") ☐ 900mm (36") ☐ 1050mm (42") ☐ 1200mm (48") ☐ 1350mm (54") ☐ 1500mm (60") ☐ 1800mm (72") ☐ 2100mm (84") ☐ 2400mm (96") ☐ 2700mm (108") ☐ 3000mm (120")

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

Belt Splice:_____ Condition of Splice:_____ Number of Splices:_____ ☐ Skived ☐ Unskived

Material conveyed: _____

Days per week run:_____ Hours per day run:_____

Blade Life:

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

Is blade making complete contact with belt? ☐ Yes ☐ No

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 PAT bags and lines

Was Cleaner Adjusted: ☐ Yes ☐ No

Pole Condition: ☐ Good ☐ Bent ☐ Worn

Lagging: ☐ Side 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
Poor cleaning performance	Cleaner under-tensioned	Adjust to correct tension – see spring length/PSI chart
	Cleaner over-tensioned	Adjust to correct tension – see spring length/PSI chart
	Cleaner installed in wrong location	Verify "C" dimension, relocate to correct dimension
	Cleaner blade worn or damaged	Replace cleaner blade
Rapid Blade Wear	Tension on cleaner too high/low	Adjust to correct tension – see spring length/PSI chart
	Cleaner not located correctly	Check cleaner location for correct dimensions
	Blade attack angle incorrect	Check cleaner location for correct dimensions
	Material too abrasive for blade	Option: switch to alternate cleaner with metal blades
	Mechanical splice damaging blade	Repair, skive or replace splice
Center wear on blade (smile effect)	Blade wider than material path	Replace blade with width to match material path
	Tension on cleaner too high/low	Adjust to correct tension – see spring length/PSI chart
Unusual wear or damage to blade	Mechanical splice damaging blade	Repair, skive or replace splice
	Belt damaged or ripped	Repair or replace belt
	Cleaner not correctly located	Verify "C" dimension, relocate to correct dimension
	Damage to pulley or pulley lagging	Repair or replace pulley
Vibration or noise	Cleaner not located correctly	Verify "C" dimension, relocate to correct dimension
	Blade attack angle incorrect	Verify "C" dimension, relocate to correct dimension
	Cleaner running on empty belt	Use a spray pole when the belt is empty
	Cleaner tension too high/low	Adjust to correct tension or slight adjust to diminish
	Cleaner locking bolts not secure	Check and tighten all bolts and nuts
	Cleaner not square to head pulley	Verify "C" dimension, relocate to correct dimension
	Material buildup in chute	Clean up build-up on cleaner and in chute
Cleaner being pushed away from pulley	Cleaner tension not set correctly	Ensure correct tension/increase tension slightly
	Sticky material is overburdening cleaner	Increase tension; replace with cleaner with metal tips; replace with larger size cleaner
	Cleaner not set up correctly	Confirm location dimensions are equal on both sides

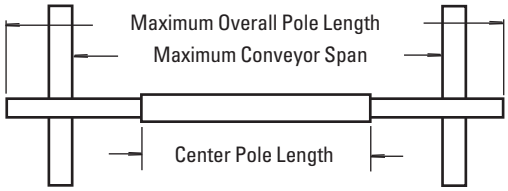
Section 8 – Specs and CAD Drawings

8.1 Specifications & Guidelines

Telescoping Pole Length Specifications

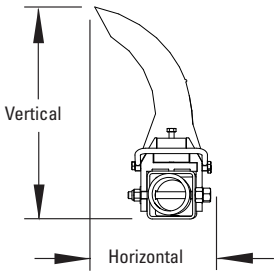
CLEANER SIZE		MAX OVERALL POLE LENGTH		CENTER POLE LENGTH		MAXIMUM CONVEYOR SPAN	
mm	in.	mm	in.	mm	in.	mm	in.
600	24	2050	82	700	28	1650	66
750	30	2200	88	850	34	1800	72
900	36	2350	94	1000	40	1950	78
1050	42	2500	100	1150	46	2100	84
1200	48	2650	106	1300	52	2250	90
1350	54	2800	112	1450	58	2400	96
1500	60	2950	118	1600	64	2550	102
1800	72	3250	130	1900	76	2850	114
2100	84	3550	142	2200	88	3150	126
2400	96	3850	154	2500	100	3450	138
2700	108	4150	166	2800	112	3750	150
3000	120	4450	178	3100	124	4050	162

Pole Diameter - 73mm (2-7/8")



Clearance Guidelines for Installation

HORIZONTAL CLEARANCE REQUIRED		VERTICAL CLEARANCE REQUIRED	
mm	in.	mm	in.
175	7	475	19

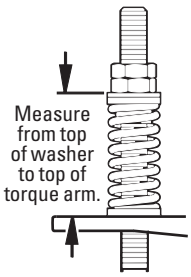


PST Spring Length Chart

Blade Width		No. Blades	White Springs		Silver Springs		Red Springs	
mm	in.		mm	in.	mm	in.	mm	in.
450	18	3	143	5 5/8	N/A	N/A	N/A	N/A
600	24	4	137	5 3/8	159	6 1/4	N/A	N/A
750	30	5	127	5	156	6 1/8	159	6 1/4
900	36	6	121	4 3/4	152	6	159	6 1/4
1050	42	7	N/A	N/A	152	6	156	6 1/8
1200	48	8	N/A	N/A	149	5 7/8	156	6 1/8
1350	54	9	N/A	N/A	146	5 3/4	152	6
1500	60	10	N/A	N/A	143	5 5/8	152	6
1650	66	11	N/A	N/A	143	5 5/8	149	5 7/8
1800	72	12	N/A	N/A	140	5 1/2	149	5 7/8
1950	78	13	N/A	N/A	137	5 3/8	146	5 3/4
2100	84	14	N/A	N/A	N/A	N/A	146	5 3/4
2250	90	15	N/A	N/A	N/A	N/A	143	5 5/8
2400	96	16	N/A	N/A	N/A	N/A	143	5 5/8
2550	102	17	N/A	N/A	N/A	N/A	140	5 1/2
2700	108	18	N/A	N/A	N/A	N/A	140	5 1/2
2850	114	19	N/A	N/A	N/A	N/A	137	5 3/8

Shading indicates preferred spring option.

Spring tension is based on the number of blades on the cleaner, not the belt width.



PAT Pressure Chart

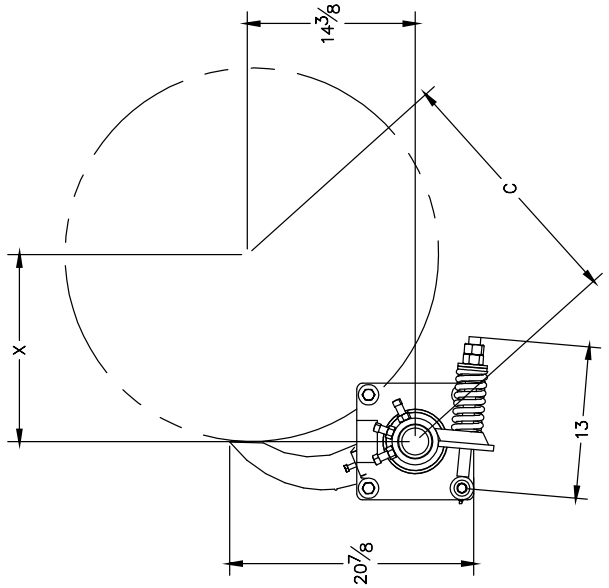
Blade Width		No. Blades	Pressure	
mm	in.		kPa	psi
450	18	3	55	8
600	24	4	69	10
750	30	5	90	13
900	36	6	103	15
1050	42	7	124	18
1200	48	8	138	20
1350	54	9	159	23
1500	60	10	172	25
1650	66	11	193	28
1800	72	12	214	31
1950	78	13	228	33
2100	84	14	248	36
2250	90	15	262	38
2400	96	16	283	41
2550	102	17	296	43
2700	108	18	317	46
2850	114	19	331	48

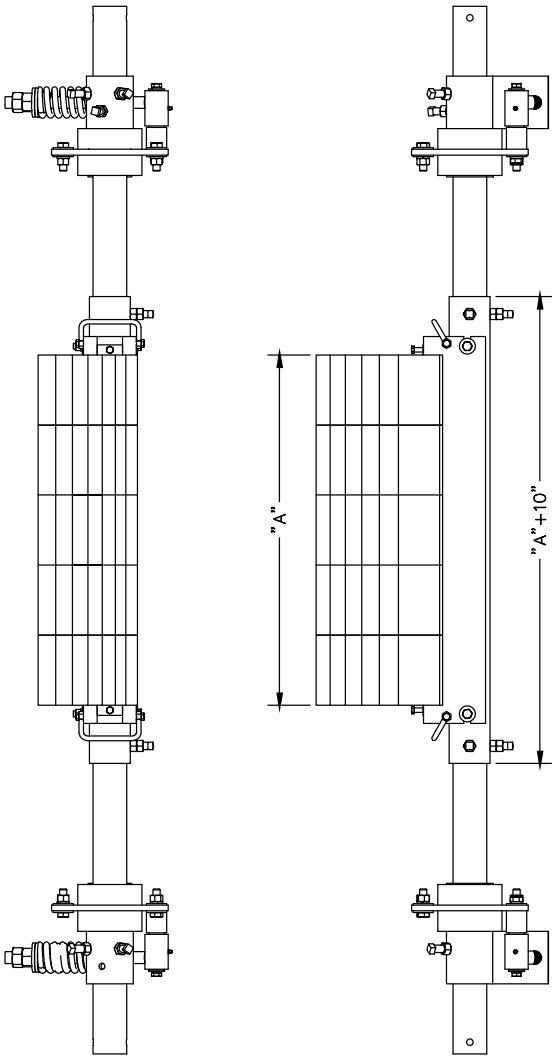
*kPa setting is based on number of blades, not belt width.

Specifications:

- Maximum Belt Speed ..... 6M/sec (1200 FPM)
- Temperature Rating ..... -35 to 82°C (-30 to 180°F)
- Minimum Pulley Diameter..... 500mm (20")
- Blade Height..... 350mm (14")
- Usable Blade Wear Length..... 200mm (8")
- Blades ..... Polyurethane (proprietary blend for abrasion resistance and long wear).
- Available for Belt Widths ..... 600 to 2400mm (24 to 120").
  Other sizes available upon request.
- CEMA Cleaner Rating ..... Class 5

8.2 CAD Drawing — MHCP - PST

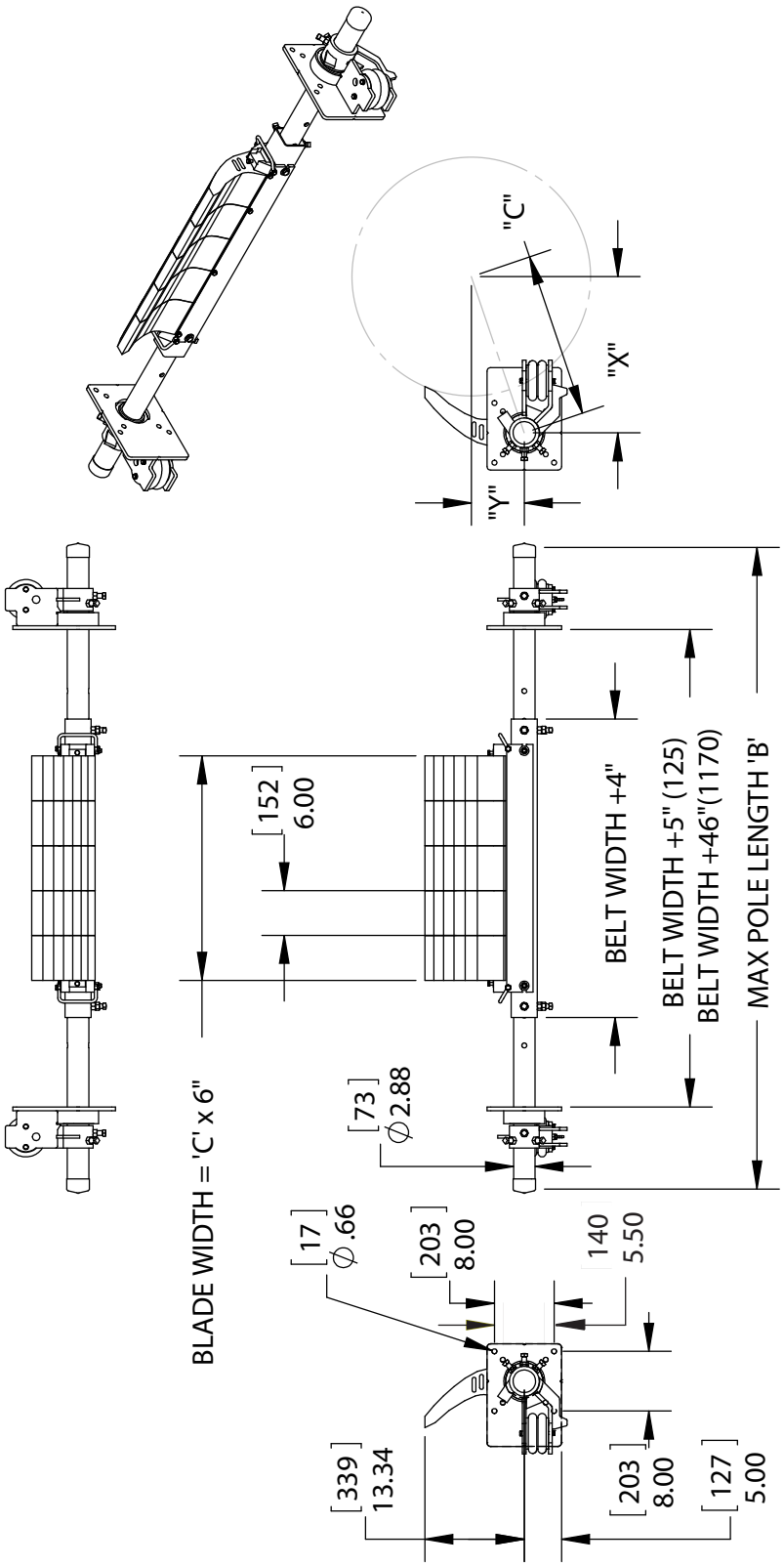




Section 8 – Specs and CAD Drawings

8.2 CAD Drawing — MHCP - PAT

SPECIFICATION				NUMBER OF BLADES 'C'	MHCP PAT PRECLEANER		CENTER POLE		CARTRIDGE	
BELT WIDTH 'A'		MAX POLE LENGTH 'B'			ORDER NUMBER	ITEM CODE	ORDER NUMBER	ITEM CODE	ORDER NUMBER	ITEM CODE
(mm)	(in)	(mm)	(in)							
600	24	2080	82	3	MHCP-24P	78723	MHP-CP24	75961	MHCP-2BC24	76638
750	30	2230	88	4	MHCP-30P	78724	MHP-CP30	75962	MHCP-2BC30	76639
900	36	2380	94	5	MHCP-36P	78725	MHP-CP36	75963	MHCP-2BC36	76640
1050	42	2530	100	6	MHCP-42P	78726	MHP-CP42	75964	MHCP-2BC42	76488
1200	48	2680	106	7	MHCP-48P	78727	MHP-CP48	75965	MHCP-2BC48	76489
1350	54	2830	112	8	MHCP-54P	78728	MHP-CP54	75966	MHCP-2BC54	76490
1500	60	3000	118	9	MHCP-60P	78729	MHP-CP60	75967	MHCP-2BC60	76491
1800	72	3300	130	11	MHCP-72P	78730	MHP-CP72	75968	MHCP-2BC72	76493
2100	84	3600	142	13	MHCP-84P	78731	MHP-CP84	76811	MHCP-2BC84	76697
2400	96	3900	154	15	MHCP-96P	78959	MHP-CP94	78958	MHCP-2BC96	78986
2700	108	4150	166	17	MHCP-108P	90169	MHP-CP108	90169	MHCP-2BC108	90413
3000	120	4450	178	19	MHCP-120P	90170	MHP-CP120	90170	MHCP-2BC120	90414



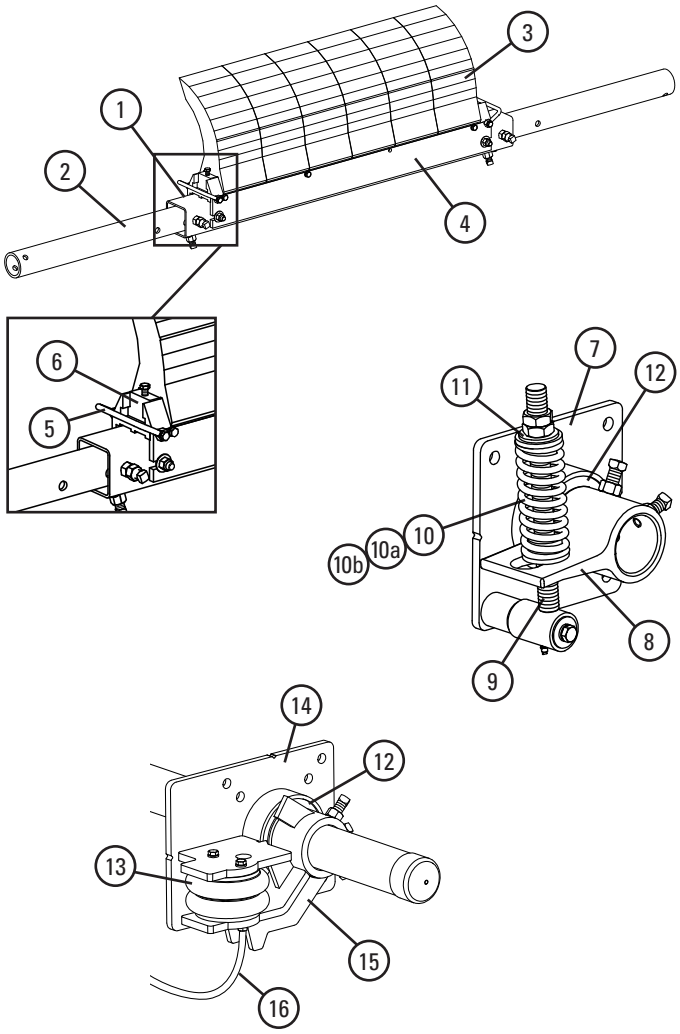
Section 9 – Replacement Parts

9.1 Replacement Parts List

Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG
1	600mm (24") Center Pole *	MHP-CP24	75961	8.6
	750mm (30") Center Pole *	MHP-CP30	75962	10.5
	900mm (36") Center Pole *	MHP-CP36	75963	12.3
	1050mm (42") Center Pole *	MHP-CP42	75964	14.1
	1200mm (48") Center Pole *	MHP-CP48	75965	16.0
	1350mm (54") Center Pole *	MHP-CP54	75966	17.9
	1500mm (60") Center Pole *	MHP-CP60	75967	19.7
	1800mm (72") Center Pole *	MHP-CP72	75968	23.4
	2100mm (84") Center Pole *	MHP-CP84	76811	27.3
	2400mm (96") Center Pole *	MHP-CP96	78958	31.2
2	MHCP Extender Poles (2 ea.)	MHP-EP	76392	24.5
3	SuperShear™ Blade	SSRB	75978	3.0
4	600mm (24") 2-Piece Blade Cartridge *	MHCP-2BC24	76638	6.0
	750mm (30") 2-Piece Blade Cartridge *	MHCP-2BC30	76639	8.0
	900mm (36") 2-Piece Blade Cartridge *	MHCP-2BC36	76640	10.0
	1050mm (42") 2-Piece Blade Cartridge *	MHCP-2BC42	76641	12.0
	1200mm (48") 2-Piece Blade Cartridge *	MHCP-2BC48	76642	14.0
	1350mm (54") 2-Piece Blade Cartridge *	MHCP-2BC54	76643	16.0
	1500mm (60") 2-Piece Blade Cartridge *	MHCP-2BC60	76644	18.0
	1800mm (72") 2-Piece Blade Cartridge *	MHCP-2BC72	76645	22.0
	2100mm (84") 2-Piece Blade Cartridge *	MHCP-2BC84	76812	25.6
	2400mm (96") 2-Piece Blade Cartridge *	MHCP-2BC96	78986	29.3
5	MHCP Cartridge Handle *	MHCP-CH	76393	0.2
6	MHCP Cartridge Blade Stop *	MHCP-BS	76394	0.2

*Hardware Included



PST Tensioner Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG
7	Mounting Plate Kit * (2 ea.)	MHPMPK	77727	20.1
8	Torque Arm * (1 ea.)	PSTA	75896	5.2
9	Torque Pivot Kit (1 ea.) (no spring)	PTPK	75897	3.2
10	Tension Spring – White (1 ea.) for belts 24–48" (600–1200mm)	PSTS-W	75898	0.8
10a	Tension Spring – Silver (1 ea.) for belts 54–84" (1350–2100mm)	PSTS-S	75899	1.4
10b	Tension Spring – Red (1 ea.) for belts 96" (2400mm)	PTS-R	77726	1.4
11	Bushing Kit (2 ea.) (for White, Silver, & Red Tensioners)	QMTBK-W	76098	0.1
12	Pole Bearing Assy (for cleaners shipped after 4/2016)	AWTPBA	90000	1.0
–	PST Spring Tensioner* – White (includes 2 each items 7, 8, 9, 10 & 11) for belts 24–48" (600–1200mm)	PST2-W	77723	39.0
–	PST Spring Tensioner* – Silver (includes 2 each items 7, 8, 9, 10a & 11) for belts 54–84" (1350–2100mm)	PST2-S	77724	39.1
-	PST Spring Tensioner* – Red (incl. 2 each items 7, 8, 9 ,10b &11) for belts 96" (2400mm)	PST-R	77725	39.1

*Hardware Included

PAT Tensioner Replacement Parts

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG
13	Air/Water Bag (1 ea.)	AWTB	75905	1.7
14	Mounting Base (1 ea.)	AWTMB	75906	10.4
15	Torque Arm * (1 ea.)	AWTA	75907	5.3
16	Hose Kit (50' (15 M) of hose and 6 hose clamps)	AWTHK	75909	3.0
–	AWT Air/Water Tensioner (includes 2 each items 13, 14, 15 & 1 each item 16)	AWTNCB	76069	34.1

*Hardware Included

Number of Blades per Cleaner Size

mm	600	750	900	1050	1200	1350	1500	1800	2100	2400	2550	2700	3000
in	24	30	36	42	48	54	60	72	84	96	102	108	120
Blades	4	5	6	7	8	9	10	12	14	16	17	18	19

Section 9 – Replacement Parts

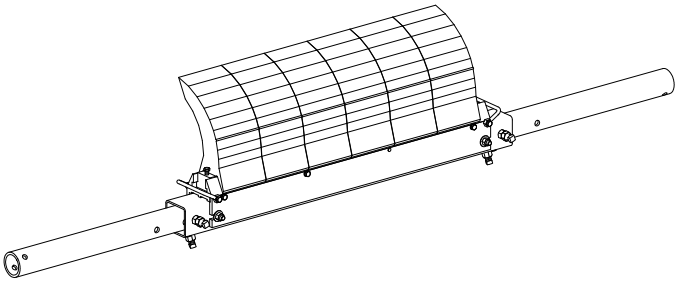
9.2 Optional Assemblies, Tensioners & Kits

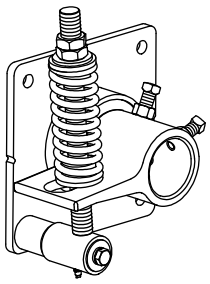
Blade/Pole Assemblies

(Includes blades, cartridge, center pole and 2 extender poles)

BELT WIDTH		ORDERING NUMBER	ITEM CODE	WT. KG
mm	in.			
600	24	MHCP-BPA24	75945	48.1
750	30	MHCP-BPA30	75946	54.9
900	36	MHCP-BPA36	75947	61.8
1050	42	MHCP-BPA42	75948	68.6
1200	48	MHCP-BPA48	75949	75.4
1350	54	MHCP-BPA54	75950	82.3
1500	60	MHCP-BPA60	75951	89.1
1800	72	MHCP-BPA72	75952	102.8
2100	84	MHCP-BPA84	76809	119.9
2400	96	MHCP-BPA96	78956	137.1

Lead time: 1 working day





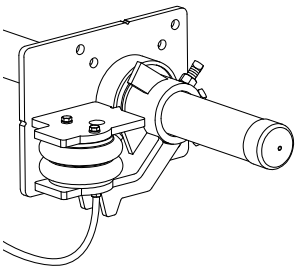
PST Spring Tensioner

Tensioners

(Includes tensioners for both pole ends)

DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. KG
PST Spring Tensioner – White for belts 600–1200mm (24–48")	PST-W	75893	39.0
PST Spring Tensioner – Silver for belts 1350–2100mm (54–84")	PST-S	75894	39.1
PST Spring Tensioner – Red for belts 2400mm (96")	PST2-R	77725	39.1
AWT Air/Water Tensioner	AWTNCB	76069	34.1

Lead time: 1 working day



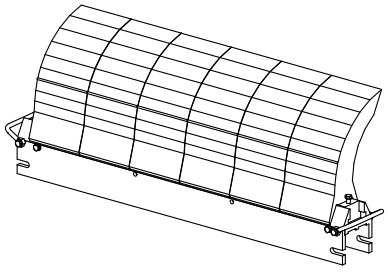
PAT - AWT Air/Water Tensioner

Blade Cartridge Kits

(Includes blades, cartridge, and mounting bolts)

BELT WIDTH		ORDERING NUMBER	ITEM CODE	WT. KG
mm	in.			
600	24	MHCP-BCK24	75953	15.0
750	30	MHCP-BCK30	75954	20.0
900	36	MHCP-BCK36	75955	24.9
1050	42	MHCP-BCK42	75956	29.9
1200	48	MHCP-BCK48	75957	34.9
1350	54	MHCP-BCK54	75958	39.9
1500	60	MHCP-BCK60	75959	44.9
1800	72	MHCP-BCK72	75960	54.9
2100	84	MHCP-BCK84	76810	64.0
2400	96	MHCP-BCK96	78957	73.2

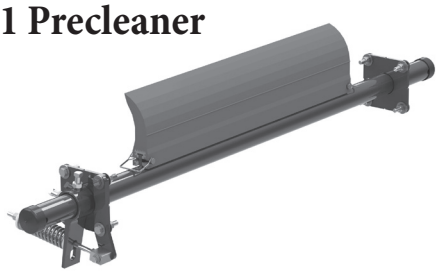
NOTE: For easy blade changeout, remove cartridge with worn blades and replace with new blade cartridge kit. New blades can then be installed in the old cartridge for the next changeout.
Lead time: 1 working day



Section 10 – Other Flexco Conveyor Products

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

EZP1 Precleaner



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

DRX Impact Beds

- Exclusive Velocity Reduction Technology™ to better protect the belt
- Slide-Out Service™ gives direct access to all impact bars for change-out
- Impact bar supports for longer bar life
- 4 models to custom fit to the application

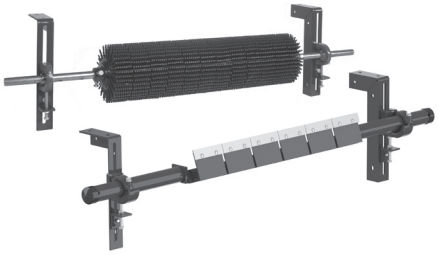
EZS2 Secondary Cleaner

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

PT Max™ Belt Trainer

- Patented "pivot & tilt" design for superior training action
- Dual sensor rollers on each side to minimize belt damage
- Pivot point guaranteed not to freeze or seize 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

Visit **www.flexco.com** for other Flexco locations and products, or to find an authorised distributor.