EZS2 Secondary Belt Cleaner

Installation, Operation and Maintenance Manual





www.flexco.com

Serial Number:	
Purchase Date:	
Purchased From:	
Installation Date:	

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

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

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1.1 General Introduction

We at Flexco are very pleased that you have selected an EZS2 Secondary Belt 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 visit our web site or contact our Customer Service Department:

Customer Service: +65-6484-1533

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 EZS2 Secondary Belt 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. Before installing and operating the EZS2 Secondary Belt 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 replacementCleaning

A 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

A WARNING

Use Personal Protective Equipment (PPE):

Safety eyewear

• Repairs

- Hardhats
- Safety footwear

Close quarters, springs and heavy components create a worksite that compromises a worker's eyes, feet and skull.

PPE must be worn to control the foreseeable hazards associated with conveyor belt cleaners. Serious injuries can be avoided.

2.2 Operating Conveyors

There are two routine tasks that must be performed while the conveyor is running:

- Inspection of the cleaning performance
- Dynamic troubleshooting

A DANGER

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

A 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.

A WARNING

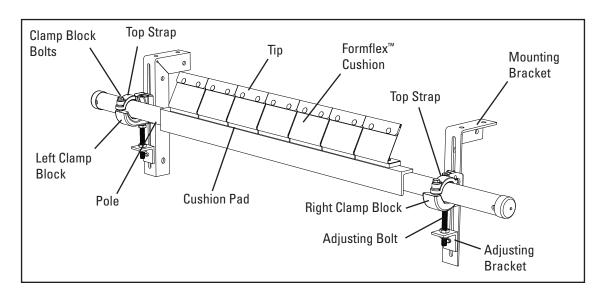
Never adjust anything on an operating cleaner. Unforseeable belt projections and tears can catch on cleaners and cause violent movements of the cleaner structure. Flailing hardware can cause serious injury or death.



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

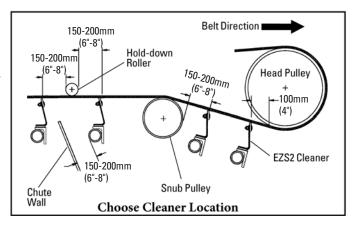
4.1 EZS2 Secondary Belt Cleaner

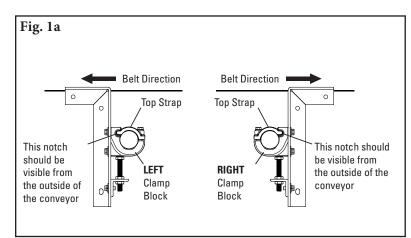


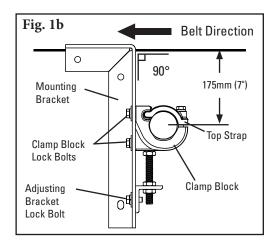
Physically lock out and tag the conveyor at the power source before you begin cleaner installation.

Tools Needed:

- Tape measure
- (2) 19nn (3.4") wrench or crescent wrench
- 1. Install the mounting brackets. Determine the correct clamp block (left or right) and bracket needed for each side of the conveyor. The top strap should be offset away from the belt (you should be able to see the notch for the top strap from the outside of the conveyor). (Fig. 1a). Position the mounting bracket to locate the cleaner pole centerline 175mm (7") below the beltline. The pole must be installed so the blades do not touch the belt. Positioning the brackets perpendicular to the belt is recommended (Fig.1b).

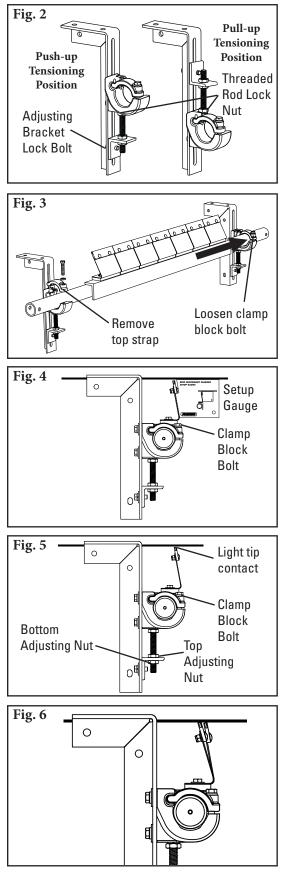








4.1 EZS2 Secondary Belt Cleaner (cont.)



- 2. Choose the tensioner position. The tensioner is shipped mounted in the push-up position. Depending upon the space constraints of the installation, the tensioner can be optionally mounted in a pull-up position. To do this, loosen the threaded rod lock nut, unscrew the threaded rod and remove adjusting bracket lock bolt. Then move the adjusting bracket and threaded rod to the top of the clamp blocks (Fig. 2) and tighten threaded rod lock nut.
- **3. Install the pole.** Remove the clamp block top strap on one side, and on the opposite side loosen the clamp block bolt. Slide the pole across and into the loosened clamp block, replace the top strap on the clamp block, center the blades on the belt and tighten both clamp block bolts finger tight.
- 4. Set the blade angle. With the gauge provided, rotate the pole so the blades are set at the correct angle. Lock the pole in place by tightening the clamp block bolts (Fig. 4).
- 5. Set the blade tension. Loosen the 4 clamp block lock bolts (on the back of the mounting brackets) and turn the top adjusting jam nut on each side until the blades make light contact across the entire width of the belt. Make an additional 1 full turn on the adjusting nuts to tension the blades. Tighten the bottom adjusting nuts and the clamp block bolts (Fig. 5).
- 6. Check the blade tension. Pull back on the outside blade until it breaks contact with the belt and release (Fig.6). If the blades are correctly tensioned, the complete tip of the adjacent blade will be visible. If it is not, make a tension adjustment as instructed in Step 5.

Test run the cleaner and inspect the performance. If vibration occurs, the pole can be rotated to lay the cushion/blade back another 5° to 10° and then the blades must be retensioned. If more cleaning efficiency is desired, the blade tension can be increased in 1/4 turns on the adjusting nuts (see Step 5).

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5.1 Pre-Op Checklist

- Recheck that all fasteners are tightened properly
- Add pole caps
- Apply all supplied labels to the cleaner
- Check the blade location on the belt
- Be sure that all installation materials and tools have been removed from the belt and the conveyor area

5.2 Test Run the Conveyor

- Run the conveyor for at least 15 minutes and inspect the cleaning performance
- Check the tensioner spring for recommended length (proper tensioning)
- Make adjustments as necessary

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



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

All safety procedures for inspection of equipment (stationary or operating) must be observed. The EZS2 Secondary 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 can determine:

- If adjusting brackets are set 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.
- 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.

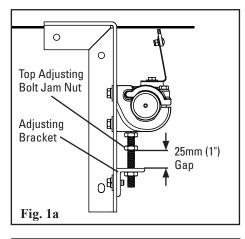
6.3 Routine Physical Inspection (every 6-8 weeks)

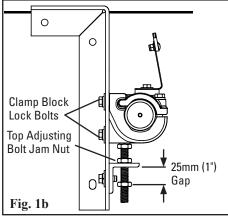
When the conveyor is not in operation and properly locked and tagged out a physical inspection of the cleaner to perform the following tasks:

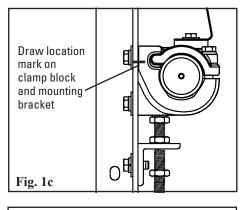
- Clean material buildup off of the cleaner blade and pole.
- Closely inspect the blade for wear and any damage. Replace if needed.
- Ensure full blade to belt contact.
- Inspect the cleaner pole for damage.
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any worn or damaged components.
- Check the tension of the cleaner blade to the belt. Adjust the tension if necessary using the steps on page 8.
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing properly.

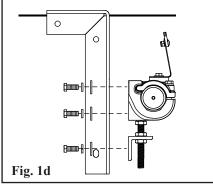
Section 6 – Maintenance

6.4 **Blade Replacement Instructions**









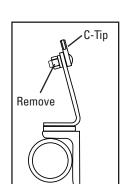
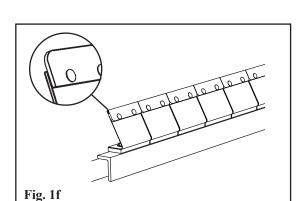


Fig. 1e



d. Remove the clamp block lock bolts and adjusting bracket lock bolts on each side and remove the pole with the clamp blocks and adjusting brackets attached (Fig. 1d).

- e. Remove the nuts, flat washers and lock washers from the tips and remove the worn tips (Fig. 1e).
- f. Insert new blade tips and install flat washers, lock washers and nuts finger tight. Buff the outside corners of the last tip on each side of the cleaner (Fig. 1f).

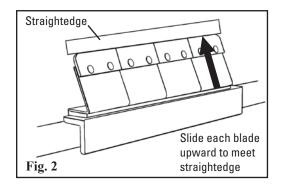
BEFORE YOU BEGIN:

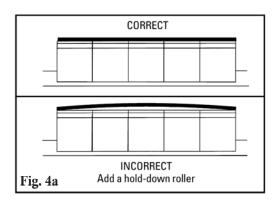
PHYSICALLY LOCK OUT AND TAG THE CONVEYOR AT THE POWER SOURCE.

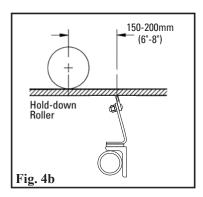
- 1. Release the blade tension and remove worn blade tips.
 - a. Loosen and turn the top adjusting bolt jam nuts 1" (25mm) above the tops of the adjusting brackets (Fig. 1a).
 - b. Loosen the clamp block lock bolts on both sides and allow the pole to move down and rest on the raised top adjusting bolt jam nuts (Fig. 1b).
 - c. Place location marks across the mounting bracket and the clamp block for quick repositioning after blade replacement (Fig. 1c).

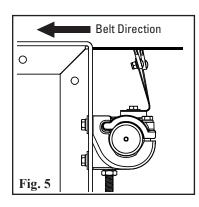
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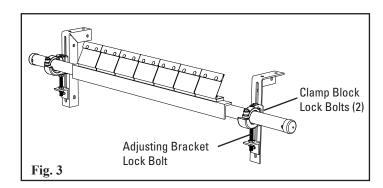
6.4 Blade Replacement Instructions (C-Tips) (cont.)











- 2. Align the blade tips. Push tips together so there is no more than a .010" to .015" gap between them. Position a straightedge along the top surface of new blade tips. Pull upward on each blade to align with the bottom of the straightedge and tighten the nuts (Fig. 2).
- **3. Reinstall the pole.** Slide the pole back into position on the mounting brackets, aligning the marks made on the bracket and clamp block. Install the two adjusting bracket lock bolts and tighten. Install the four clamp block lock bolts finger tight (Fig. 3).
- 4. Set the blade tension. Turn the top adjusting bolt jam nuts down until light tip to belt contact is made across the entire width of the cleaner. Add an additional 1½ turns on the top adjusting bolt jam nuts and lock the bottom adjusting bolt jam nuts. Tighten all clamp block lock bolts.

NOTE: If the belt is cupped, do not overtension the blades to contact the belt. A hold-down roller should be installed to flatten the belt (Fig. 4a and 4b). (Try the Stabilizing Return Roller or Stabilizing Roller Bracket Kit).

- 5. Check the blade tip tension. Pull back on the outer blade in the direction of belt travel until the blade breaks contact with the belt. Let go of the blade. With correct tension the full thickness of the adjacent blade tip should be visible in front of the outer blade (Fig. 5). Also check the center blade in same manner. Add tension in 1/2-turn increments on the top adjusting bolt jam nuts until view of full thickness of the adjacent blade tip is achieved.
- **6.** Test run cleaner and inspect operation. If vibration occurs, increase tip tension by making 1/2-turn adjustments.

Section 6 – Maintenance

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



6.6 Cleaner Maintenance Checklist

Site:	Inspected by:	Date:
Belt Cleaner:	Serial Number:	
Beltline Information: Beltline Number:	Belt Condition:	
Belt □ 450mm □ 600mm □ 750mm Width: (18") (24") (30")	n 🗆 900mm 🗆 1050mm 🗆 1200mm 🗆 1350mm 🗆 1 (36") (42") (48") (54")	1500mm 🗆 1800mm (60") (72")
Head Pulley Diameter (Belt & Lagging):	Belt Speed: fpm	Belt Thickness:
Belt Splice: Condition of Splic	e: Number of Splices: 🗆 Ski	ved 🗆 Unskived
Material conveyed:		
Days per week run: Ho	ırs per day run:	
Blade Life: Date blade installed: Date b	ade inspected: Estimated blade life:	
Is blade making complete contact with belt	🗆 Yes 🗆 No	
Distance from wear line: Left	Middle F	Right
Blade condition: 🗆 Good	□ Not contacting belt □ Damaged	
Measurement of spring: Require	d Currently	
Was Cleaner Adjusted: 🗆 Yes	□ No	
Pole Condition: 🗆 Good	🗆 Bent 🛛 Worn	
Lagging: □ Side Lag □ 0	Ceramic 🗆 Rubber 🗆 Other 🗆 No	one
Condition of lagging: \Box 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:		

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



8.1 Specifications and Guidelines

Pole Length Specifications

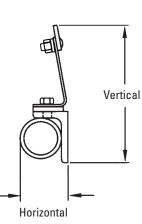
	Belt Width		Blade Width		ole gth	Maxi Conv Sp	veyor
mm	in.	mm	in.	mm	in.	mm	in.
450	18	450	18	1300	52	1175	47
600	24	600	24	1450	58	1325	53
750	30	750	30	1600	64	1475	59
900	36	900	36	1750	70	1625	65
1050	42	1050	42	1900	76	1775	71
1200	48	1200	48	2050	82	1925	77
1350	54	1350	54	2200	88	2075	83
1500	60	1500	60	2350	94	2225	89
1800	72	1800	72	2650	106	2525	101

Max Conveyor Span ____

Pole Diameter - 60mm (2 3/8")

Clearance Guidelines for Installation

Horizontal Clearance Required		Vertical Clearance Required		
mm in.		mm	in.	
100	100 4	213	8 1/2 for 18"-54"	
100	4	238	9 1/2 for 60"-72"	



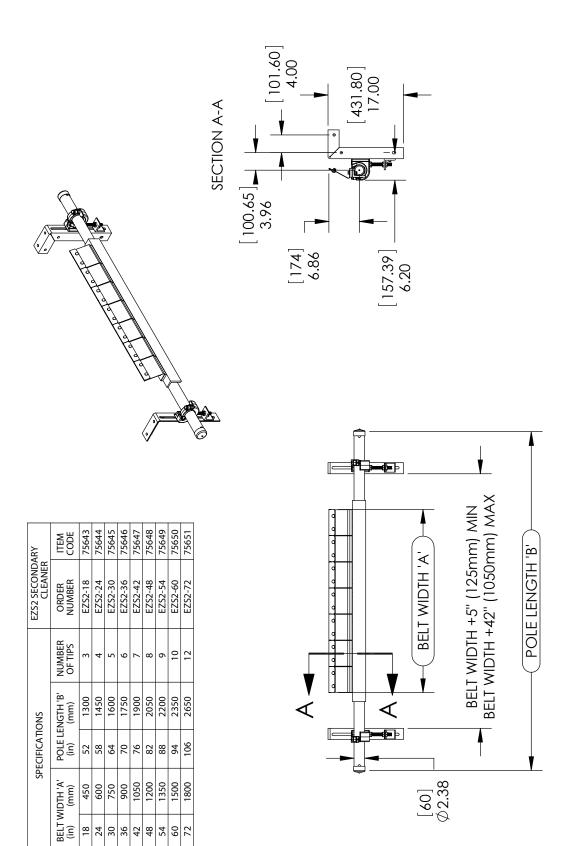
Specifications:

- Temperature Rating.....-35°C to 93°C (-30°F to 200°F)
- HT.....-35°C to 205°C (-30°F to 400°F)
- Usable Blade Wear Length......9mm (3/8")
- Blade MaterialImpact Resistant Tungsten Carbide
- (works with mechanical fasteners)
- Available for Belt Widths......450 to 1800mm (18" to 72")
- CEMA Cleaner Rating.....Class 3

U.S. Patent No. 6,823,983

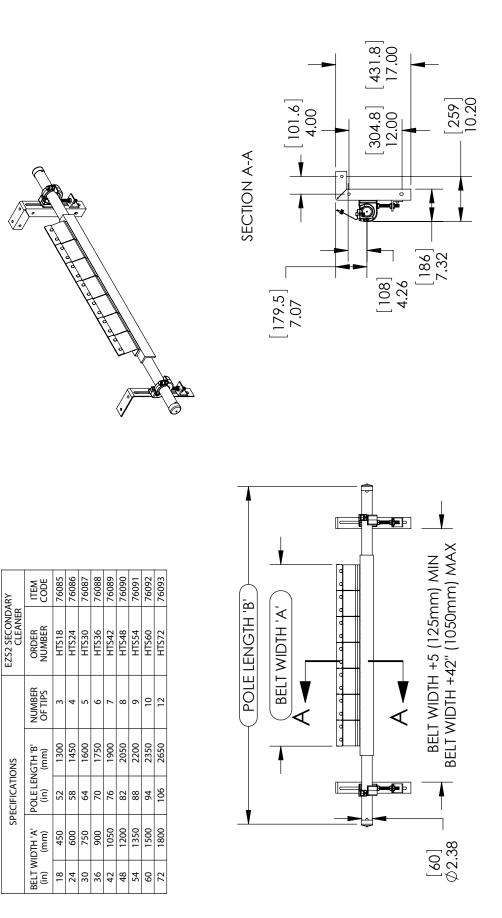
Section 8 – Specs and CAD Drawings

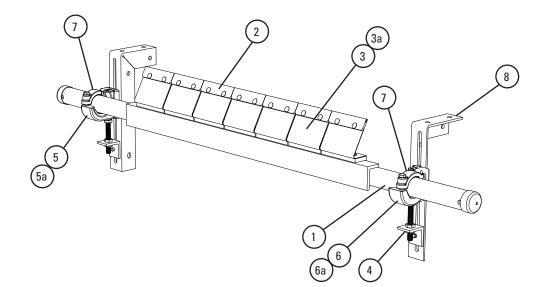
8.2 CAD Drawing – EZS2 with C-Tips



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8.2 CAD Drawing – EZS2 Hi Temp





Replacement Parts

Ref	Description	Ordering Number	ltem Code	Wt. Lbs.
	450mm (18") Pole	EZS2P18	75652	11.3
	600mm (24") Pole	EZS2P24	75653	12.7
	750mm (30") Pole	EZS2P30	75654	13.6
	900mm (36") Pole	EZS2P36	75655	15.4
1	1050mm (42") Pole	EZS2P42	75656	16.3
	1200mm (48") Pole	EZS2P48	75657	17.7
	1350mm (54") Pole	EZS2P54	75658	19.5
	1500mm (60") Pole	EZS2P60	75659	34.9
	1800mm (72") Pole	EZS2P72	75660	40.4
2	C-Tip Kit* (1 ea.)	ICT6	74535	0.3
3	FormFlex™ Cushion Kit* (incl. 1 cushion & 1 pad)	FFCK	75661	0.7
3a	High Temp Replacement Cushion Kit (incl. 1 cushion & 1 pad)	HTSCK	76094	0.7
4	Adjusting Bracket Kit* (1 ea.)	PAB	75513	0.7
5	Pole Clamp Kit LEFT* (1 ea.) (incl. item 7) for sizes 450-1350mm (18"-54")	CCKL	79224	3.1
5a	HD Pole Clamp Kit LEFT* (1 ea.) (incl. item 7a) for sizes 1500-1800mm (60"-72")	CCKHDL	79225	3.9
6	Pole Clamp Kit RIGHT* (1 ea.) (incl. item 7) for sizes 450-1350mm (18"-54")	CCKR	79228	3.1
6a	HD Pole Clamp Kit RIGHT* (1 ea.) (incl. item 7a) for sizes 1500-1800mm (60"-72")	CCKHDR	79229	3.9
7	Cradle Clamp Top Strap (1 ea.) for use on L or R Pole Clamp Kit	ссктѕ	79232	0.5
7a	HD Cradle Clamp Top Strap (1 ea.) for use on L or R HD Pole Clamp Kit	CCKHDTS	79233	0.8
8	Mounting Bracket Kit (1 Right and 1 Left)	EZS2MBK	75666	5.9
-	Cradle Clamp Mounting Kit* for sizes 450-1350mm (18"-54") (incl. 2 ea. Items 4 and 1 ea. Items 5, 6 & 8)	ССМК	78919	15.0
-	HD Cradle Clamp Mounting Kit* CCMKHD 78920 1 – for sizes 1500-1800mm (60"-72") CCMKHD 78920 1 (incl. 2 ea. Items 4 and 1 ea. Items 5a, 6a & 8) C C C			

Mounting Kit Selection Chart

Cleaner Width	78919 CCMK	78920 CCMKHD
EZS2 450 - 1350mm (18" - 54")	Х	
EZS2 1500 - 1800mm (60" - 72")		Х

Cleaner Tips and Cushions Required Per Cleaner Size

mm	in.	Tips Required
450	18	3
600	24	4
750	30	5
900	36	6
1050	42	7
1200	48	8
1350	54	9
1500	60	10
1800	72	12



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

Flexco Secondary Belt Cleaners



- Long-wearing metal blades for superior cleaning efficiency
- Individually mounted blades for consistent cleaning power
- Easy to install, simple to service
- Works with Flexco mechanical belt splices

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

DRX Impact Beds



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

PT Max[™] Belt Trainer



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

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



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