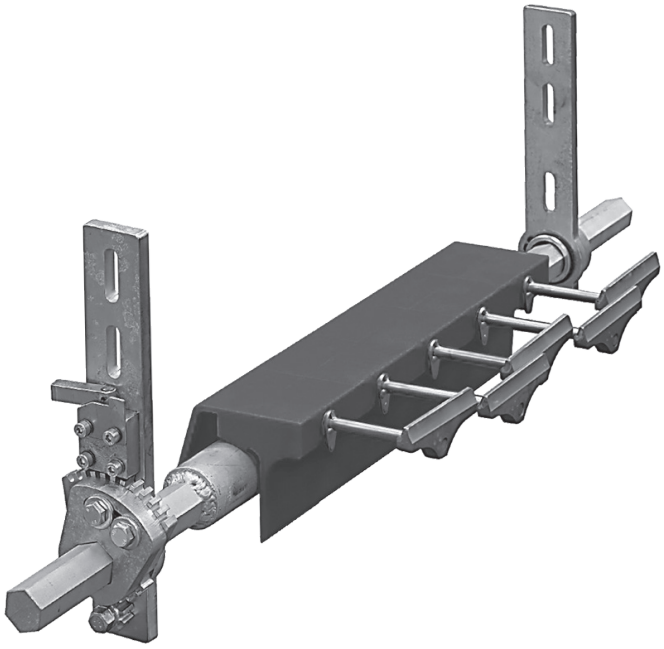
T-Type™ Secondary Cleaner

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 T-Type™ 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 website 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 T-Type™ 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.

Section 2 - Safety Considerations and Precautions

Before installing and operating the T-Type™ 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 replacement
- Cleaning
- Repairs

⚠ 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

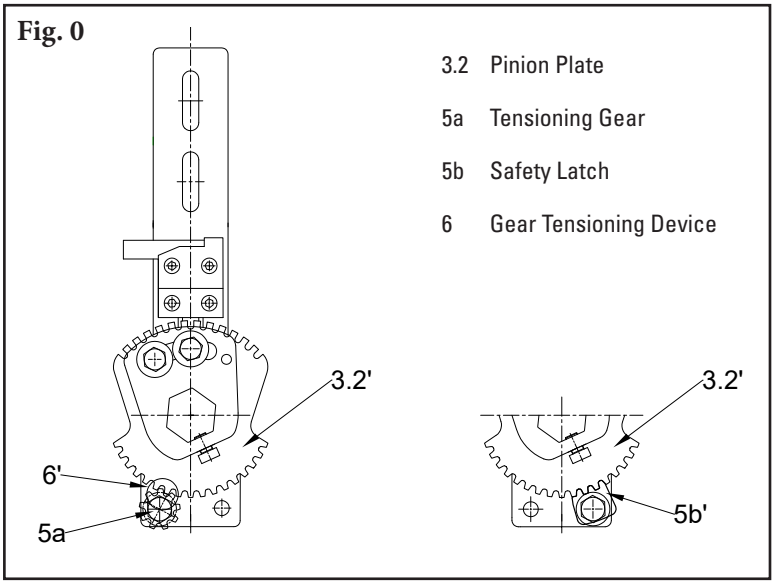
3.1 Checklist

- Check that the cleaner size is correct for the beltline width.
- Check the belt cleaner carton and make sure all the parts are included.
- Check the conveyor site:
  - Will the cleaner be installed on a chute?
  - Is the install on an open head pulley requiring mounting structure?

3.2 Optional Installation Accessories

Different versions and configurations of the T-Type™ Secondary Belt Cleaner can be used. In certain cases, the T-Type™ can be equipped with a HD tensioning device instead of a standard tensioner (Fig. 0). If holes cannot be made on the conveyor structure, a bypass access may be used instead. The manufacturer must be consulted individually for each case.

Fig. 0

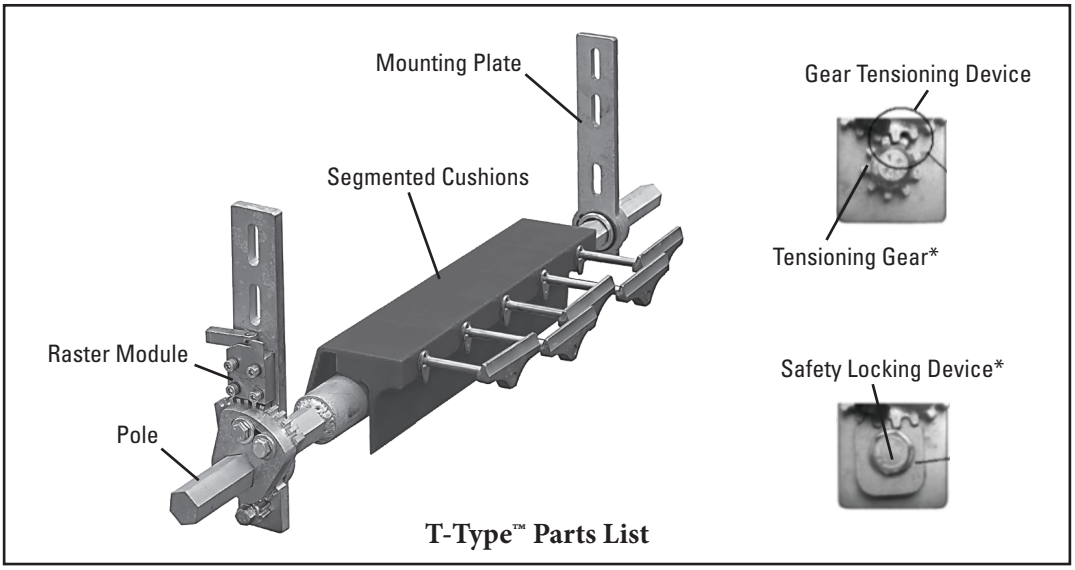


The HD tensioning device differs from the standard tensioner with the construction of the pinion plate (Fig. 0-3.2) and the safety latch (Fig. 0-5b). The HD tensioning device is recommended for use in applications with belt widths greater than 1200 mm. This solution is used for lighter tensioning of the cleaner, allowing for a larger gear ratio (Fig. 0-6).

The installation, tension, and operation of the T-Type™ Secondary Belt Cleaner with a HD tensioning device is the same as described under Section 4.

Section 4 - Installation Instructions

4.1 T-Type™ - Choosing the Installation Site



T-Type™ Parts List

*Tensioning Gear and Safety Locking Device are not included in the delivery of the complete cleaner. They are supplied independently and per individual customer ordering.

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

Before You Begin

- When chute mounting, an access hole may need to be made for mounting and inspection.
- Observe all safety precautions when using a cutting torch.
- When welding, protect all connector threads from weld spatter.

Section 4 - Installation Instructions

4.1 T-Type™ - Choosing the Installation Site

1. **Position the pole.** If conditions permit, the cleaner should be mounted directly to the conveyor structure. Otherwise, additional constructions must be made and must be sturdy enough to avoid cleaner vibration during operation.

   The line of contact between the blade and the belt (L_0) should be in a location where the belt has no contact with the pulley or behind the head pulley.

   NOTE: The further away the cleaner is positioned from the pulley, the higher the deflection will be from the pressure of the cleaner blades on the belt.

   The position of the cleaner in relation to the conveyor starts by determining the correct position of the pole in relation to the belt (L_S/L_H) and the head pulley (L_X) (Fig. 1).

2. **Install a hold-down roller.** The vertical distance between the pole and belt should be 83 mm (L_S) for S models, and 80 mm (L_H) for HD and H models. The line of contact between the blade and the belt (L_0) must measure 150–500 mm, and the pole location must allow for the cleaner to be positioned perpendicular to the belt (Fig. 2).

3. **Position the cleaner near the head pulley.** If the belt is lifted by more than 119 mm after tensioning the cleaner, a hold-down roller should be mounted 150–500 mm behind the blade (Fig. 3).

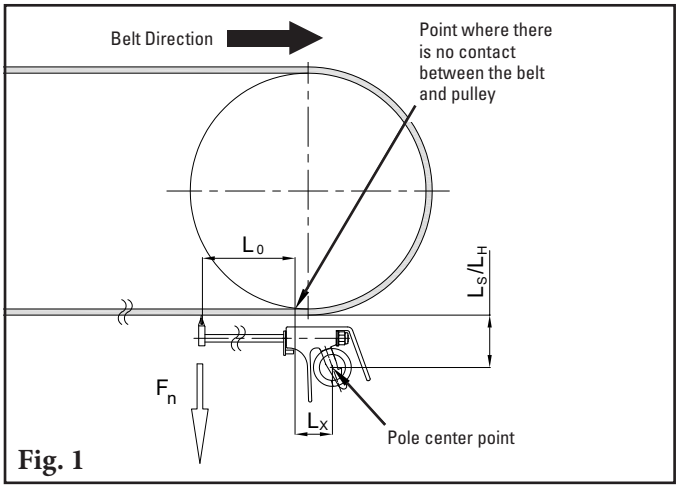


Fig. 1

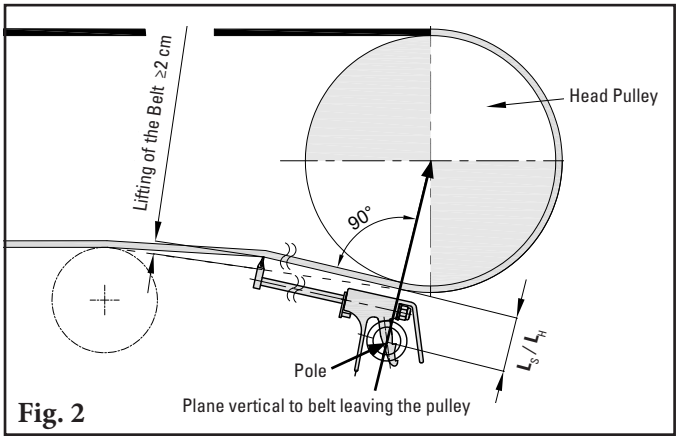
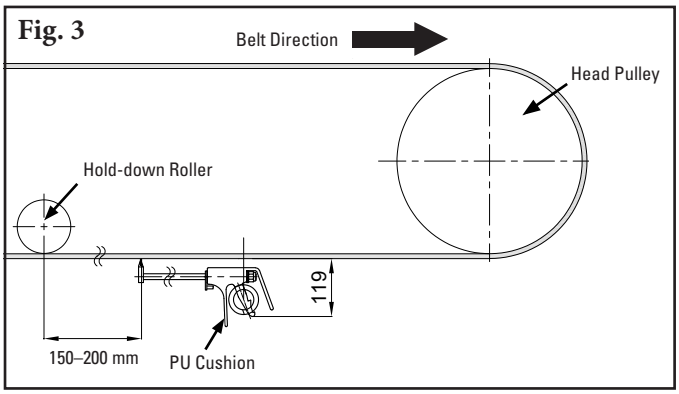


Fig. 2

Fig. 3



Section 4 - Installation Instructions

4.2 T-Type™ - Drilling Access and Mounting Bracket Holes

1. **Drill holes for mounting brackets.** First, cut access holes to allow for chute mounting (70 x 105 mm) on both sides of the conveyor structure. Next, drill 3 holes on both sides of the structure to mount the brackets and tensioning device(s). Be sure to position the access holes so the vertical distance between the pole and belt will equal 83 mm (L_S) for S models, and 80 mm (L_H) for HD and H models (Fig. 4).

   NOTE: If the mounting bracket hole locations do not fit on the conveyor structure, additional supports must be made.

   The tensioning device can be mounted on the pole at any desired angle to the belt, but the mounting brackets and pole must be positioned according to Fig. 4 and allow for accessibility for future adjustments.

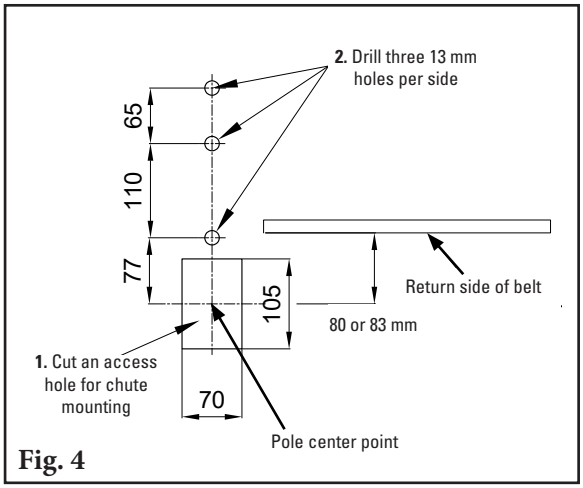


Fig. 4

4.3 T-Type™ - Installing the Cleaner

a) Slide the cleaner pole through the prepared holes.

   NOTE: Be sure there is space for future cleaner maintenance, ensuring that the pole can pivot freely around its axis.

   Next, place one mounting plate at each end of the pole (SW36); the tensioning device at one end and locking ring on the other. Attach them as is, or with the additional supports on the conveyor structure.

   NOTE: Cleaners with dual tensioners must have both lower pinion plates (Fig. 5-3.2) positioned to ensure they lock with the tensioning gears (Fig. 5-5a) simultaneously during tensioning adjustments.

c) Install the cushion segments centered on the pole (Fig. 5-2).

d) Center the pole and blades with the belt, lock the tensioner in place by turning the tightening the locking screw (Fig. 5-3.4).

e) Check that all fasteners are tightened properly.

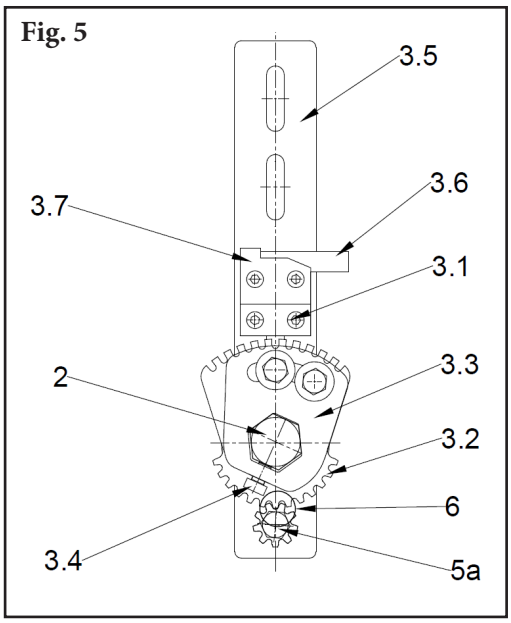


Fig. 5

Section 4 - Installation Instructions

4.4 T-Type™ - Tensioning the Cleaner

a) Prior to tensioning the cleaner, the tension lever guide plate (Fig. 5-3.7) and tension lever (Fig. 5-3.6) must be positioned according to the desired tensioning direction, right (P) or left (L). With the tension lever in the assembly and maintenance (0) position, the pole may rotate freely in any direction (Fig. 6).

NOTE: The locking plate is fixed with two M8-hex socket screws.

b) The tensioning device must be tensioned the same direction the tension lever points, ensuring the pole rotates in only one direction. Rotating the pole the opposite direction of tension may lead to tensioning bolt damage.

c) The function of the tensioning device is shown in Fig. 6. To increase the tension, an adjustable wrench (SW19) may be used for turning the tensioning gear. The torque is transferred to the pole via the mechanical gear.

NOTE: Tensioning direction of the adjustable wrench (SW19) is opposite to the tension of the blade.

d) The cleaner is tensioned until the Fn-pressure value of the blades acts on the belt. The Fn-pressure value is determined by weight (kg), see the Fn-Pressure Value chart for the correct pressure needed.

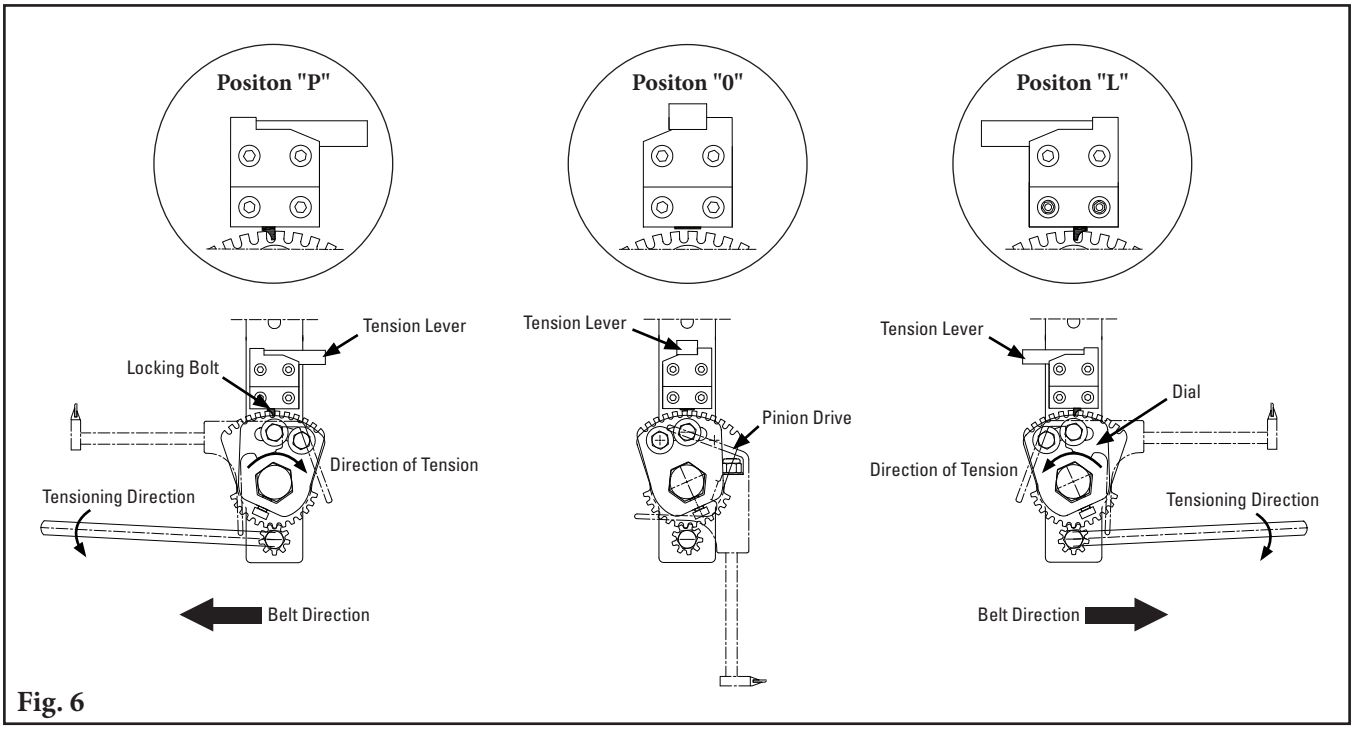


Fig. 6

Position "P"– Right Tension: direction of tension is towards the right (clockwise) only.

Position "0"– Assembly and maintenance position, it is impossible to set or withstand any tension.

Position "L"– Left Tension: direction of tension is towards the left (counterclockwise) only.

T-Type™ Fn-Pressure Values

CONDITIONS	CLAMPING FORCE	FN-PRESSURE (KG)
Very wet, muddy, greasy materials belt speeds > 3.5 m/s	Very high tension force, for undamaged belts only	20 – 30 kg
Very wet, muddy materials belt speeds <3.5 m/s	High tensioning force, for undamaged belts only	20 – 25 kg
Wet and sandy materials belt speeds <1.5 m/s	Medium tensioning force	15 – 20 kg
For severely damaged belts	Low tensioning force	<15 kg

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 T-Type™ 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.

5.1 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.

5.2 Routine Visual Inspection (every 2-4 weeks)

A visual inspection of the cleaner and belt should look for:

- If adjusting brackets are set correctly 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.

5.3 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 Fn-Pressure Value chart.
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing properly.

Section 5 - Maintenance

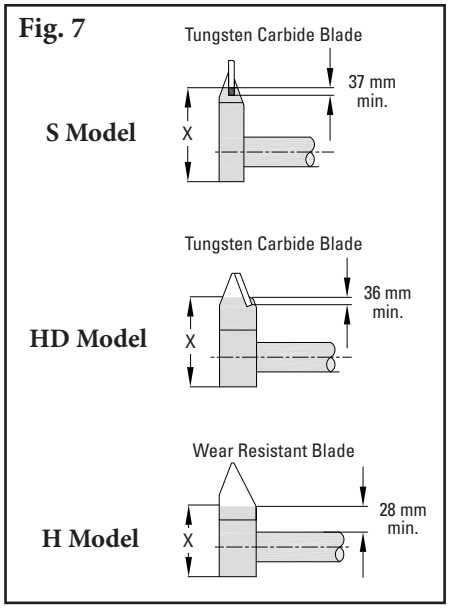
5.4 Maintenance Instructions

The cleaners are low-maintenance, but note the following:

- Cleaning of cushion segments as necessary
- Pressure of blades on belt - depends on cleaning efficiency
- Check that all fasteners are properly tightened
- Check for correct position of the cleaner (Fig. 2–4)
- Wear of blades (Fig. 7)
  - If the X length measurement reaches the minimum usable length, the blades need to be replaced.

  If any of the above issues exist, a determination should be made for cleaner maintenance.

Fig. 7



5.5 Information

Blades for S and HD models may observe uneven wear across the total cleaner blade width, therefore the difference in height of both end blades to the middle should be no more than 3 mm. If the difference in height is greater than 3 mm, the blades should be replaced.

5.6 Replacing Complete Cushion Segments

a) Release the tension lever (Fig. 8).

b) Detach the old cushion segments from the pole by slightly bending them to release the segment fixings (Fig. 8). It is always recommended to replace segments if worn.

c) Check the new cushion segments and pole for damage.

d) Install new cushion segments onto the pole.

e) Ensure that the cleaner can still rotate freely around its axis with the new cushion segments.

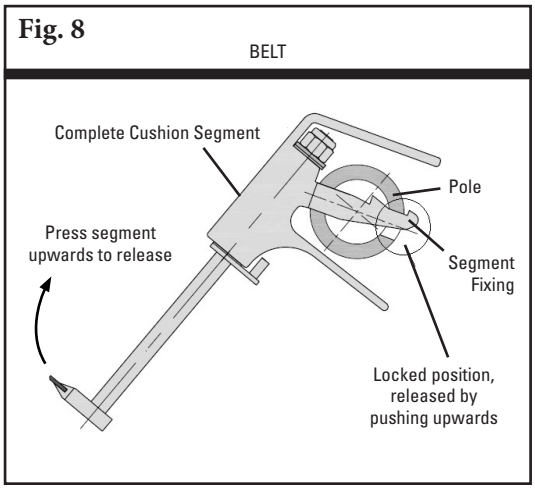
f) Retension the cleaner, see the Fn-Pressure Value chart.

g) Run the conveyor for at least 15 minutes and inspect the cleaning performance.

h) Check the tensioner and Fn-Pressure.

i) Make adjustments as necessary.

Fig. 8



Section 5 - Maintenance

5.7 Intervals for Maintenance/Inspection

- Each week - in 3-shift operation
- Every 2 weeks - in 2-shift operation
- Every 3 weeks - in 1-shift operation
- Daily if conditions are extreme, i.e. if the ambient temperature falls below 0°C or the temperature of the conveyed material exceeds 80°C

5.8 Troubleshooting

Problem	Possible Cause	Possible Solutions
Cleaning result is insufficient	Complete segments are incorrectly fitted (too tight or too weak)	Correct the pressure according to the Fn-Pressure Value chart and check the free rotation of the cleaner
	Complete segments do not contact the belt	Check if the installation corresponds with mounting instructions, and free rotation of the cleaner
		Release the cleaner, clean the complete segments, and retension
	Complete segments are damaged or worn	Replace with new complete segments
	Complete segments or cleaner are dirty	Clean complete segments and cleaner
	Pole is not perpendicular to conveyor	Check if the installation corresponds with mounting instructions, position of the mounting plate, pole, and complete segments

Due to the uneven distribution of conveyed materials and uneven wear of the belt, unequal wear of the complete segments are acceptable. In this case, complete segments should be replaced periodically.

All ice and snow should be removed from the cleaner, if applicable, and checked for proper functioning before running the conveyor. During winter, the T-Type™ cleaner should be serviced in more frequent intervals than stated in Sections 5.2, 5.3, and 5.7. These preventative measures protect the belt during successive starts of the conveyor from damages, e.g. caused by frozen material.

The manufacturer of the cleaner assumes no liability for damages caused by incorrect installation and maintenance, or use of non-original spare parts.

5.9 Waste Disposal of Used Parts

Flexible polyurathane cushions may not be disposed of in regular waste bins. Please contact your local authorities for further instructions. All other parts may be recycled.

Section 5 - Maintenance

5.10 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 #: _____

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Activity: _____

Section 6 - Notes

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