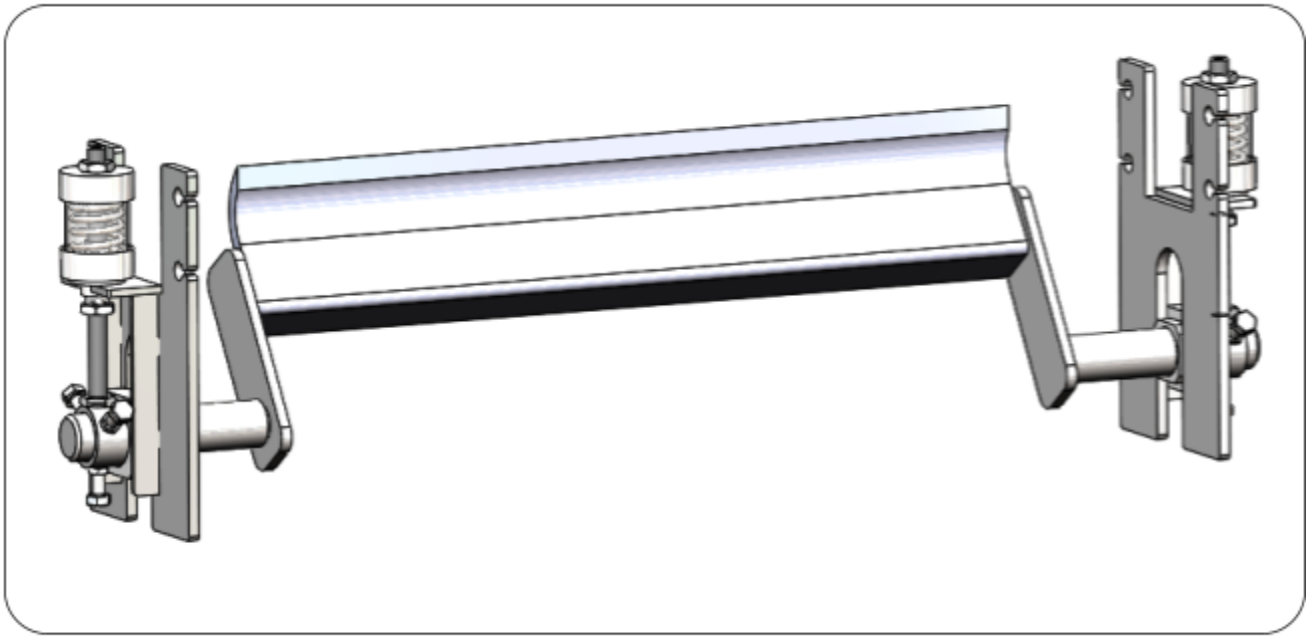
FGS FOOD GRADE SECONDARY BELT CLEANER

Installation, Operation & Maintenance Manual



Ordering Number: _____

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 and troubleshooting.

Table of Contents

Section 1 - Important Information

1.1 Introduction

We, at Flexco, are very pleased that you have selected the FGS Secondary Cleaner for your conveyor system.

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

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

If you have any questions or problems that are not covered in this manual, please visit our website or contact our Customer Service Department:

Customer Service: +91-44-6551 771/74
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 simple as possible, it does require correct installation and regular inspections and adjustments to maintain top performance.

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 costs
- Increased service life for the belt cleaner and other conveyor components

1.3 Service Option

The FGS Secondary Cleaner is designed to be easily installed and serviced by your on-site personnel. However, if you would prefer complete turn-key factory service, please contact Flexco Customer Service or your Authorized Flexco Distributor.

Section 2 - Safety Considerations and Precautions

2.1 Stationary Conveyors

Before installing and operating the FGS Secondary Cleaner, it is important to review and understand the following safety information. There are set-up, maintenance, and operational activities involving both stationary and operating conveyors. Each case has a safety protocol.

The following activities are performed on stationary conveyors:

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

⚠ DANGER

It is imperative that OSHA 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 can cause instantaneous amputation and entrapment.

⚠ WARNING

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

⚠ WARNING

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

Tensioned cleaners possess stored energy, use caution.

⚠ WARNING

Cleaner installation requires two persons.

Blade will rotate down due to gravity, use caution.

Ensure shaft is fully supported while servicing

Ensure shaft bushings are installed.

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.
• Inspect the belt and splice(s) for damage (tears, gouges, raised splices, etc.) that may interfere with the cleaner blade.
• Secondary mounted belt cleaners are not generally recommended for use on impression cover, textured, or cleated belts.
• Check the conveyor site: Are there obstructions that may require cleaner location adjustments?
Caution: All parts of the FGS Food Grade Secondary Cleaner must be cleaned and sanitized in compliance with your company’s policies and any applicable legal or regulatory requirements prior to installation and use.

3.2 Conveyor Mounting Structure

The first step in installing your FGS Food Grade Secondary Cleaner is to verify that there is adequate structure for mounting the cleaner
1. Measure conveyor width (A), including to the outside of the structure (Fig. 1).
2. Locate the cleaner in the area of the conveyor belt where it will operate.

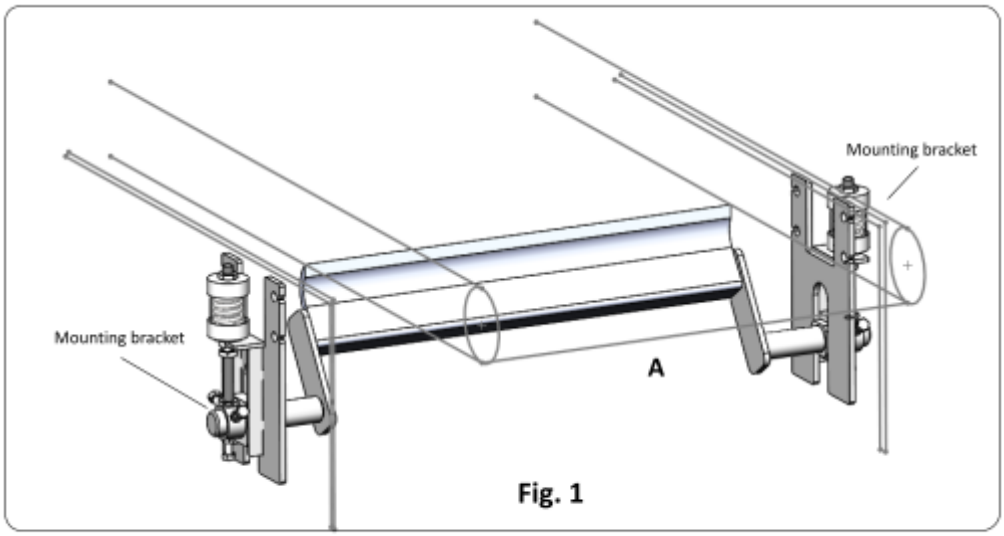
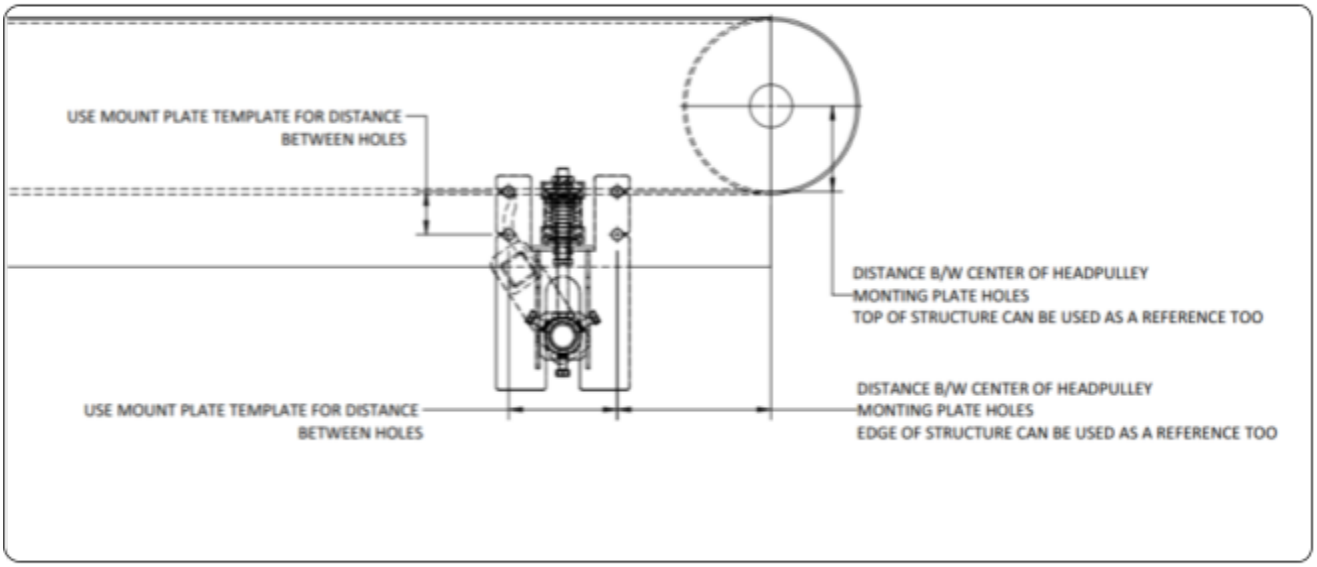


Fig. 1

3. Ensure there is enough clearance on both sides of the cleaner so conveyor components do not interfere with the cleaner operation.

4. Add the required amount of structure to the conveyor so that it extends completely inside the width of the cleaner so at least two fasteners per side can be installed on the cleaner side plates.
5. Proceed to Section 4 – Installation Instructions.



Section 4 - Installation Instructions - FGS

4.1 FGS Food Grade Secondary Cleaner Installation Instructions

Caution: Product may be adversely affected by contamination from the use of this belt cleaner. It is the user's responsibility to take the steps necessary to prevent contamination.

Tools Required:

- Tape measure
- 17 & 13 mm combination wrench
- Ratchet with 17 & 13 mm socket
- Marking pen or soapstone
- Adjustable wrench
- 5 mm drill bit (pilot hole) & 11mm Drill bit
- Food Grade Anti Seize

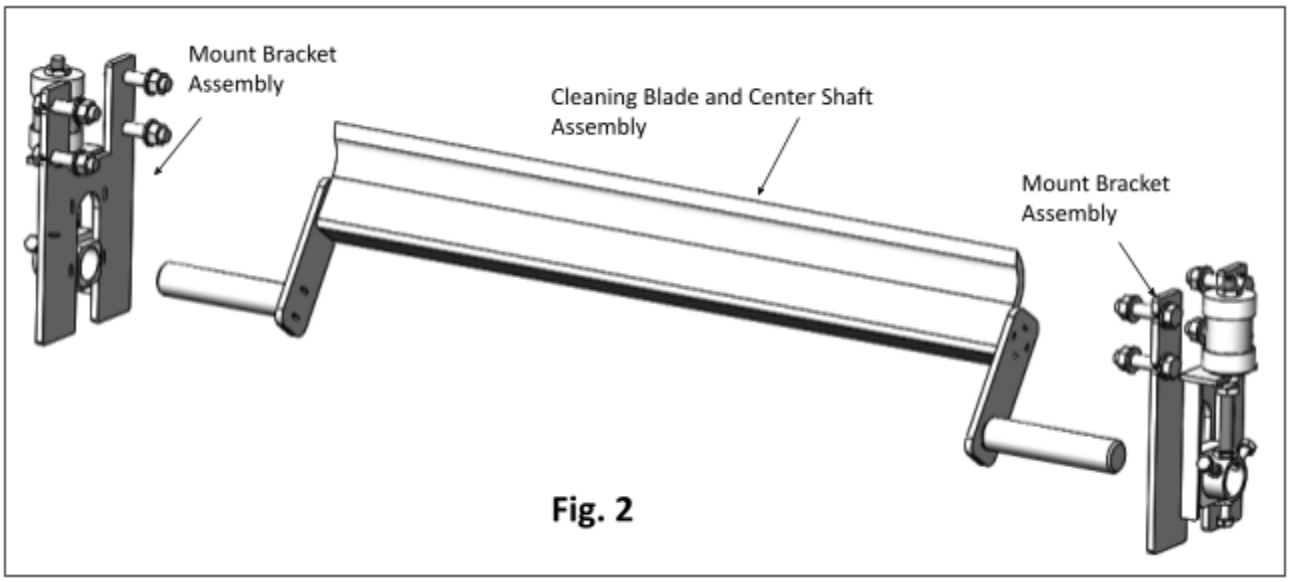


Fig. 2

PHYSICALLY LOCKOUT AND TAG THE CONVEYOR AT THE POWER SOURCE BEFORE YOU BEGIN CLEANER INSTALLATION.

Pre-Installation

- Unpack belt cleaner from packaging
- Disassemble belt cleaner
- Verify that correct size cleaner has been ordered
- Verify that all parts are included

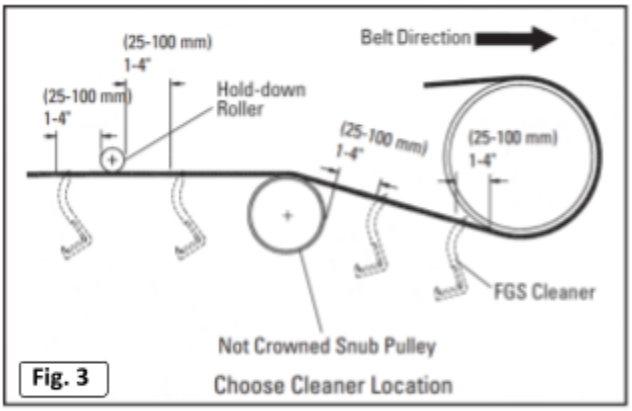
Section 4 - Installation Instructions - FGS (continued)

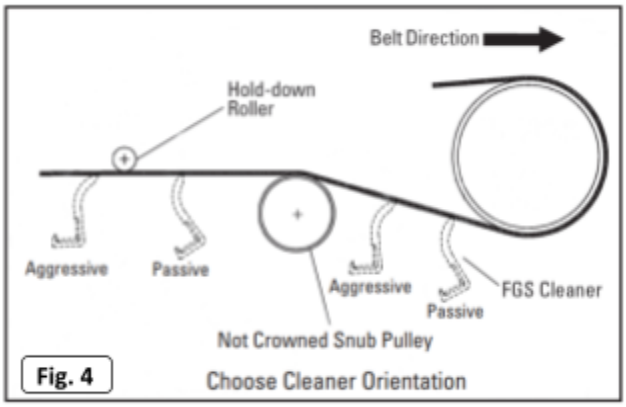
Installation Instructions

1. Measure the outside structure width where the cleaner will be mounted.
2. Measure belt cleaner shaft length. Minimum shaft length is structure width + 100mm (4") and cut shaft to length.
3. Using the main shaft assembly, place the FGS against the structure and clamp the cleaner to the conveyor to determine the positioning of the cleaner.

Warning: Ensure clamped cleaner is secure. Clamps may slip and cause the cleaner to fall unexpectedly. Personnel must NOT be below a clamped cleaner.

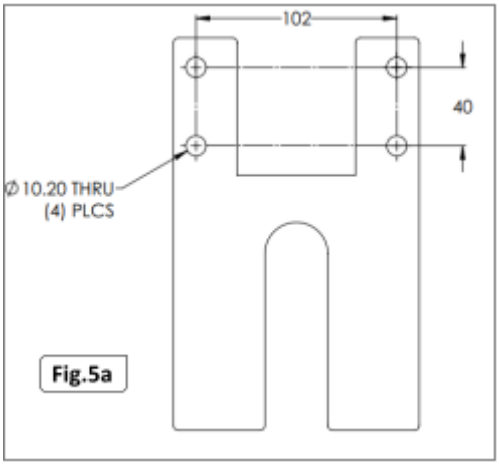
Cut plastic blade to desired length.

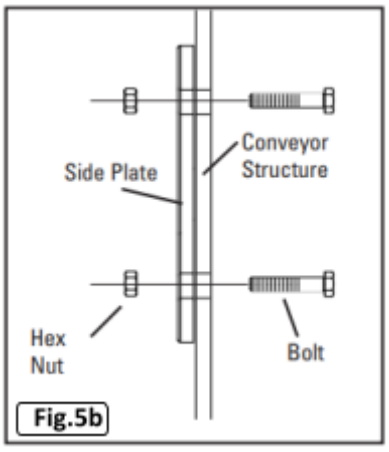




4. With the system safely clamped into position, install the blade and shaft assembly of the cleaner shaft and adjust the position of the cleaner, as per Fig. 3, and choose the cleaner blade orientation, as per Fig. 4(Passive angle is recommended for longer blade life).

5.The bolt holes need to be transfer punched onto the conveyor structure in accordance with the FGS side plate fastener holes, as per Fig. 5a, in such a way that at least two fasteners per side can be installed. The mounting cleaner is supplied with standard bolts, install as per Fig. 5b using Food Grade Anti-Seize in between the structure and mounting plate.





6. Once the cleaner is fully assembled into place, mark the mounting holes and remove the complete cleaner from the conveyor structure.

7. Back drill all holes using an 11 mm drill. At least two bolt holes are needed per side plate as noted in the bolt hole diagram (Fig. 3).

8. Clean up or remove any metal shavings or burrs created during the cutting/drilling of the shaft and mounting bolt holes.

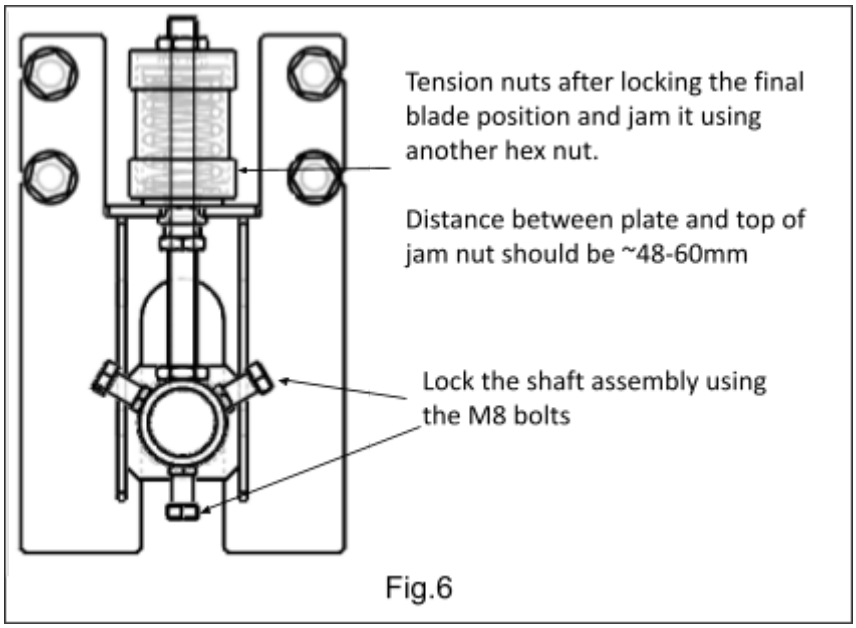


Fig.6

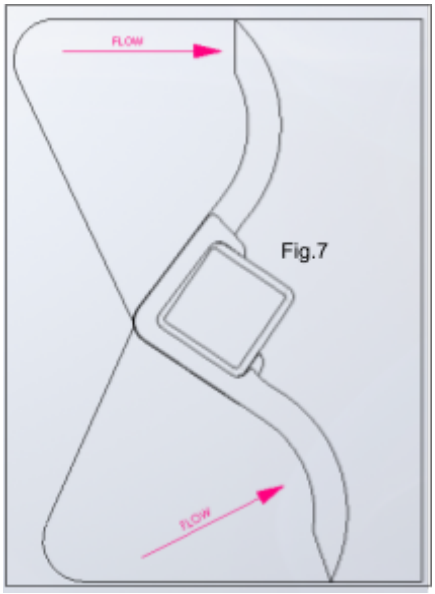


Fig.7

9. Install the spring tensioner mounting bases. Clamp the mount plate in place, then locate and install the mount plate on the opposite side. Adjust the tension nuts on each side so the centre of the shaft is about 60mm below the belt line (Fig.6)

10. Slide the center shaft into the mounting brackets on both sides, slide the bush into the pipe to engage the mounting bracket.

11. Set the blade angle (Fig.7) and rotate the blade until desired angle is achieved. Tighten the M8 shaft lock bolts(Fig 6) and lock the shaft. Set the Blade tension. Loosen the top tension jam nuts on both sides, turn the tension nuts until the correct cleaning pressure is achieved.

12. Test run the cleaner and inspect the performance, if vibration occurs, increase the blade tension by making compression adjustments on the tension springs.

13. Attach Cleaning Blade (Fig. 8)
a. Center and locate blade so that bottom lip engages with pole.
b. Using an adjustable wrench, rotate pole in the direction of the head pulley.
c. Use hand to help snap blade to pole while rotating pole.

Fig 8

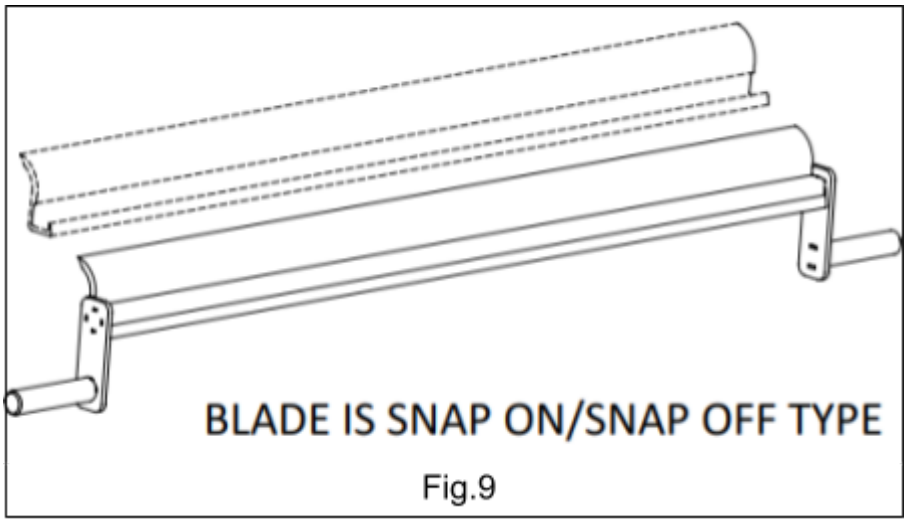


Fig.9

Section 5 - Pre-Operation Checklist and Testing

5.1 Pre-Op Checklist

- Recheck that all fasteners are tightened properly.
- Check the blade angle of attack.
- Be sure that all installation materials and tools have been removed from the belt and the conveyor area.
- Clean debris and sanitize cleaner before operation.

5.2 Test Run the Conveyor

- Run the conveyor for at least 15 minutes and inspect the cleaning performance.
- If performance is inadequate;
    a. Loosen the tension set nut.
    b. Check the blade location, angle and spring tension.
    c. Tighten the tension set nut.

NOTE: If cleaning performance is still not satisfactory, a different blade/belt angle of attack may be evaluated. This requires complete conveyor shut-down and LockOut TagOut before adjusting the centre shaft and locking bolts.

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 FGS Secondary Cleaner is in direct contact with the moving belt. Only visual observations can be made while the belt is running. With monolithic belting, the cleaner may need to be positioned near the tail pulley on head pulley drive systems, to avoid belt sag accumulation before the cleaner. Service tasks can be done only with the conveyor stopped and the correct lockout/tagout procedures observed.

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.
To ensure optimal cleaner performance, keep blade and shaft free of product buildup.

6.2 Routine Visual Inspection (every 2-4 weeks)

A visual inspection of the cleaner and belt can determine:

- 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.
- If there is cover damage to the belt.
- If there is vibration or bouncing of the cleaner on the belt.
- Check for material buildup on the adjacent hold-down 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 is properly locked and tagged out, conduct a physical inspection of the cleaner to perform the following tasks:

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

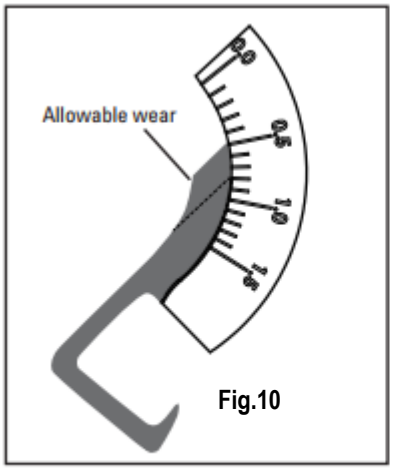
Section 6 - Maintenance (continued)

6.4 Cleaning Instructions

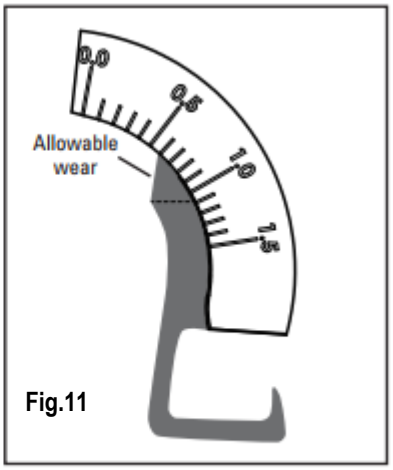
Follow recommended cleaning, foaming, and rinsing procedures as per your maintenance department guidelines.

6.5 Blade Wear Inspection

Note: Belt type, belt speed, material being conveyed, installation, and other application factors will affect blade wear.



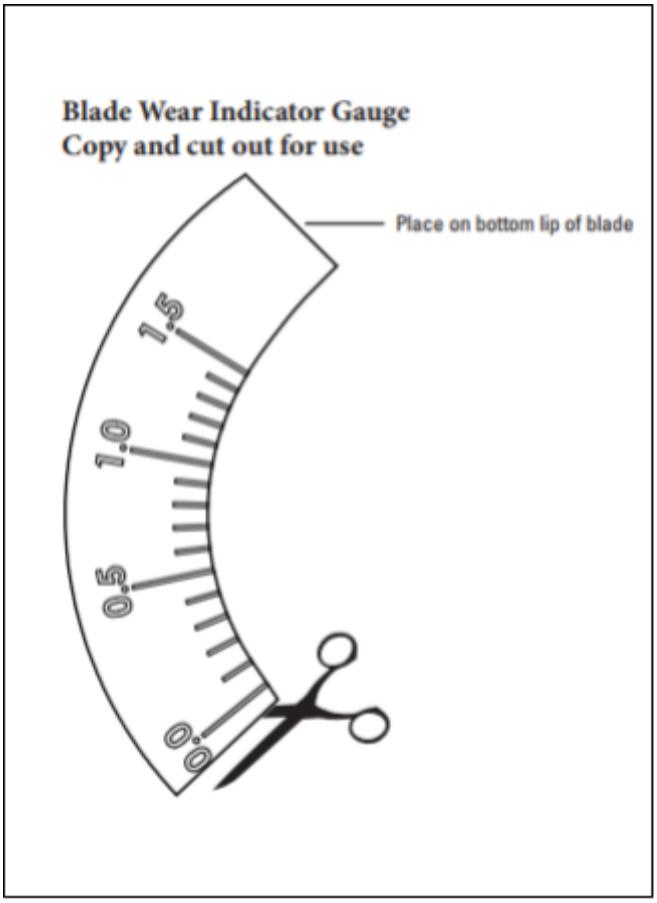
Blade Wear Measurement Using Gauge (see below) - Maximum allowable wear with blade in trailing position



Blade Wear Measurement Using Tape Measure - Maximum allowable wear with blade in leading position

To determine blade wear, use the blade wear gauge (at right) by placing the end opposite the “0” mark on the bottom lip of the blade and laying the gauge along the outside curve of the blade. Gauge can be copied and cut-out for use.

Fig.12


Blade Wear Indicator Gauge
Copy and cut out for use
Place on bottom lip of blade
1.5
1.0
0.5
0.0

Section 6 - Maintenance (continued)

6.6 Blade Replacement Instructions

Removal of Cleaning Blade

1. Relieve tension on the FGS system blade (Fig. 13).
2. Release the tension on the shaft by unlocking the tension set bolt and turning the Center Shaft Assembly until the blade is free from the tension. **Caution:** Blade will drop to hanging position.
3. Place hand on blade, pressing blade away from the bar. (Fig. 14).
4. Working from one end of the blade, rotate the blade back while holding the bar.
5. Blade should snap free from the belt cleaner bar.
6. Remove blade.

Installation of Cleaning Blade

1. Reverse steps mentioned above.
2. Center blade on belt.
3. Catch bottom lip of blade on lower front edge of belt cleaner bar (Fig. 15).
4. Beginning at one side of blade, snap blade top lip over bar. Work the top lip, snapping down the length of the bar.
5. Position blade centered on the width of the belt. Note: On wider belts, it may be necessary to assist the blade snapping with a free hand while holding the bar on the cleaner.
6. Apply tension to the FGS system.
7. Test run conveyor and adjust cleaner tension as required.

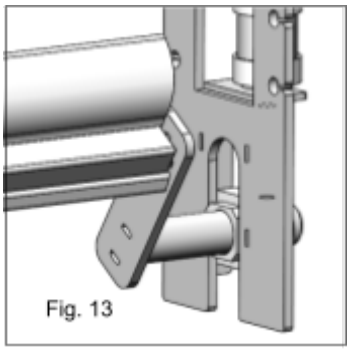


Fig. 13

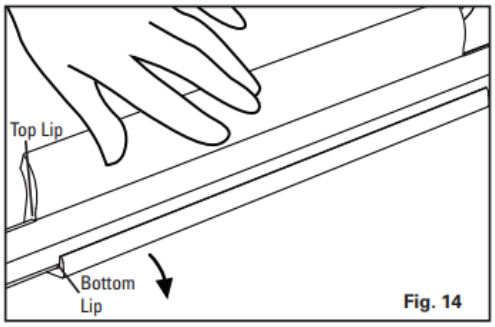


Fig. 14

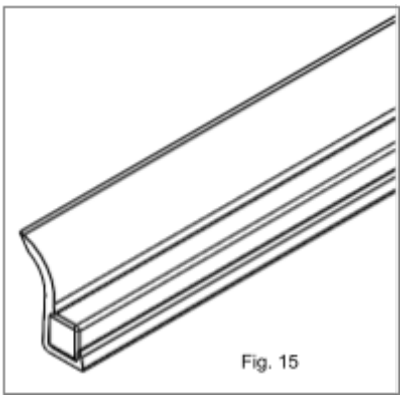


Fig. 15

Section 6 - Maintenance (continued)

6.7 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 # _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

Section 6 - Maintenance (continued)

6.8 Cleaner Maintenance Checklist

FGS Belt Cleaner:_____ Ordering Number:_____

Blade Width: ☐ Belt minus 1" (25 mm) ☐ Material path plus 3" (75 mm)

Conveyor Information:

ConveyorNumber:_____ Belt Condition: _____

Belt Width:

☐ 12”	☐ 18”	☐ 24”	☐ 30”	☐ 36”	☐ 42”	☐ 48”	☐ 54”	☐ 60”
300m	450mm	600mm	750mm	900mm	1050mm	1200mm	1350mm	1500mm

Head PulleyDiameter (Belt & Lagging):

_____

Belt Speed:_____fpm Belt Thickness: _____

Belt Splice:_____ Condition of Splice:_____

Material conveyed_____

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

Blade Life:

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

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

Blade height: Left _____ Middle _____ Right _____

Other

Comments:_____

_____

_____

Section 7 - Troubleshooting

Problem	Possible Cause	Possible Solutions
Poor cleaning performance	Excessive cleaner build-up	Inspect blade, shaft and bushings for material build up
	Cleaner under-tensioned	Increase tension and re-evaluate
	Cleaner over-tensioned	Decrease tension and re-evaluate
	Wrong install location	Relocate to correct location
	Cleaner blade worn	Replace cleaner blade
Rapid blade wear	Excessive cleaner build-up	Inspect blade, shaft and bushings for material build up
	Cleaner under-tensioned	Increase tension and re-evaluate
	Cleaner over-tensioned	Decrease tension and re-evaluate
	Wrong install location	Relocate to correct location
	Excessively abrasive material	More frequent blade adjustment and replacement
	Mechanical splice damaging blade	Repair, skive or replace splice
Excessive center wear on blade	Blade wider than material path	Replace blade with width appropriate for material path
	Cleaner under-tensioned	Increase tension and re-evaluate
	Crowned pulley	Change to a straight pulley
Unusual wear, flash or damage due to blade	Excessive cleaner build-up	Inspect blade, shaft and bushings for material build up
	Mechanical splice damaging blade	Repair, skive or replace splice
	Belt damaged or ripped	Repair or replace belt
	Wrong install location	Relocate to correct location
	Blade angle of attack	Reposition blade bar assembly within the spline
Vibration or noise	Excessive cleaner build-up	Inspect blade, shaft and bushings for material build up
	Cleaner under-tensioned	Increase tension and re-evaluate
	Cleaner over-tensioned	Decrease tension and re-evaluate
	Wrong install location	Relocate to correct location
	Cleaner nor perpendicular to belt	Relocate to correct location
Cleaner being pushed away from belt	Excessive cleaner build-up	Inspect blade, shaft and bushings for material build up
	Wrong install location	Relocate to correct location
	Blade angle of attack	Reposition blade bar assembly within the spline