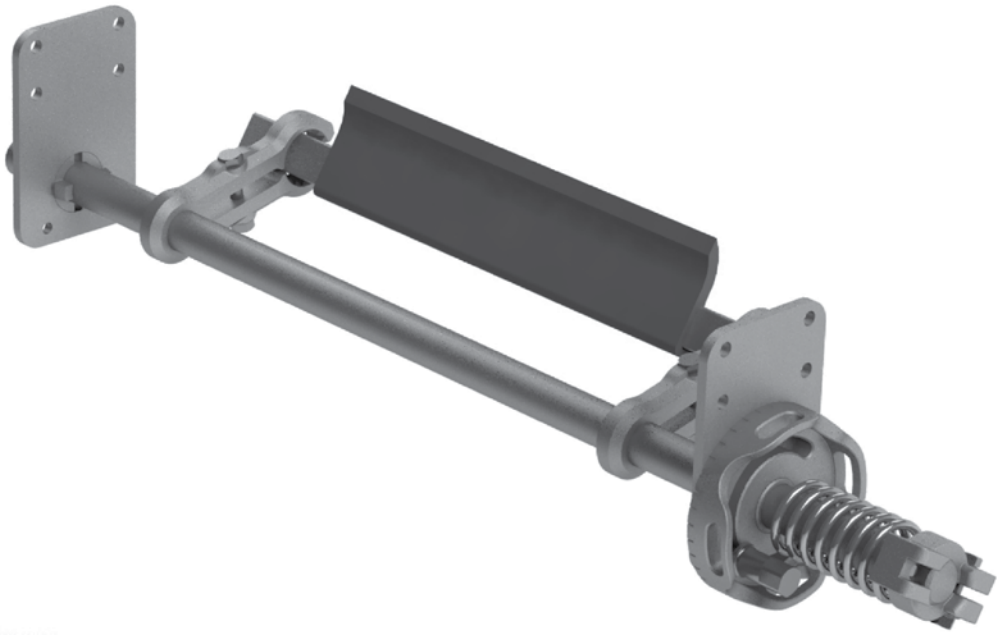
FGS Food Grade Secondary Cleaner

Installation, Operation & Maintenance Manual



EC1935/2004

Patents: www.flexco.com/patents

FLEXCO

Ordering Number: _____

Serial Number: _____

Purchase Date: _____

Purchased From: _____

Installation Date: _____

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

Table of Contents

Section 1 - Important Information

1.1 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 web site or contact our Customer Service Department:

Customer Service: 1-800-541-8028

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 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
- Tension adjustments
- Blade replacement
- Cleaning
- Repairs

⚠ 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

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.

⚠ WARNING

- Cleaner installation on wide conveyors require two persons.
- Tensioned cleaners possess stored energy, use caution when servicing.
- Exercise caution when detensioning blade. Blade will rotate downward due to gravity.
- Mounting plates and "L" shape bar create pinch points.
- Ensure shaft is fully supported when servicing.
- Ensure shaft bushings are installed.

Section 3 - Pre-installation Checks and Options

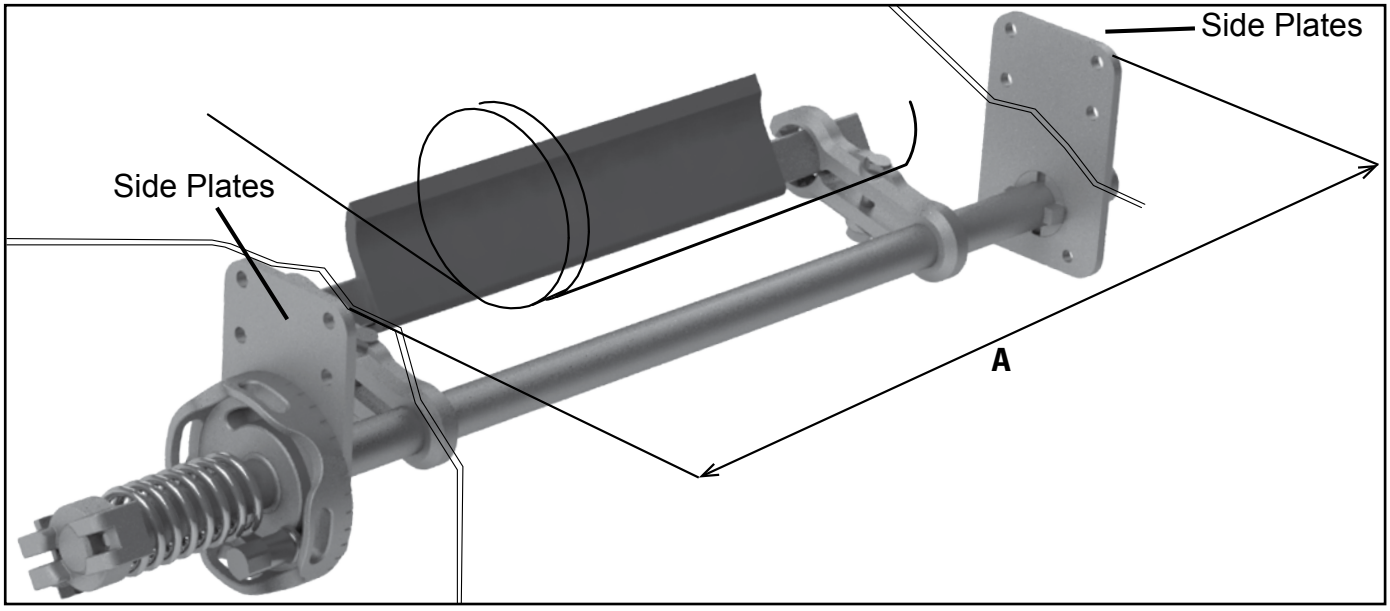
3.1 Checklist

- 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.

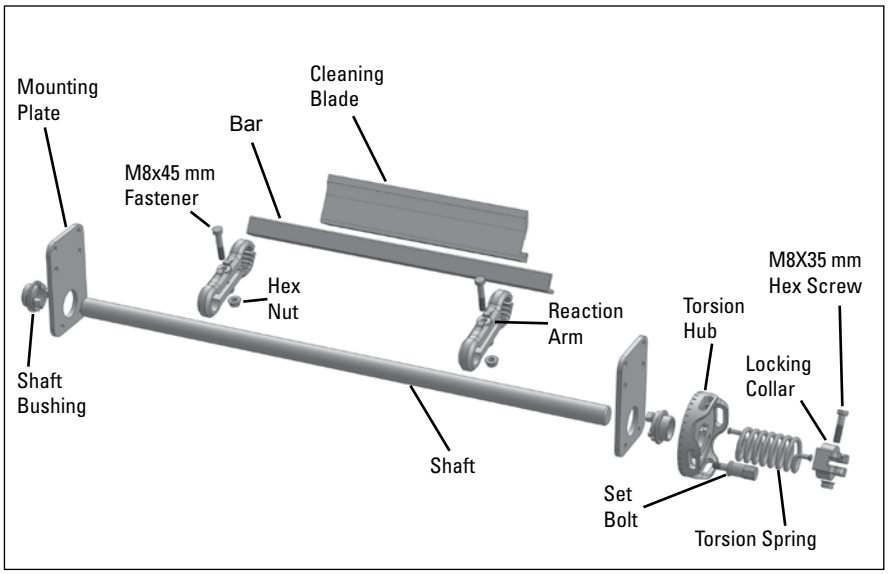
1. Measure conveyor width (A), including to the outside of the structure (Fig. 1).
2. Locate the cleaner in the area of the conveyor belt where it will operate.



3. Ensure there is enough clearance on the torsion spring side 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.

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
- 13 mm (1/2")combination wrench
- Ratchet with 13 mm (1/2") socket
- Marking pen or soapstone
- Adjustable wrench
- 8 mm (5/16") drill bit
- Food Grade Antisieze
- Welder (optional)

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

Installation Instructions

1. Measure outside structure width where cleaner will be mounted.
2. Measure belt cleaner shaft length. Minimum shaft length is structure width + 180 mm (7") 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.

4. Cut plastic blade and blade holder bar to desired length.
5. The blade holder will need to be cut to a minimum of the belt width +50 mm (2") to ensure it will engage the reaction arms. If the blade is cut wider than the belt, the blade holder will need to be cut longer than this. At final assembly, the blade holder would ideally extend beyond the reaction arms by approximately 6 mm (1/4") minimum.
6. With the system safely clamped in to position, install the blade and bar assembly of the cleaner reaction arms and adjust the position of the cleaner, as per Fig. 1, and choose the cleaner blade orientation, as per Fig. 2. Make sure you have enough room to swing the arms and they clear any obstacles.

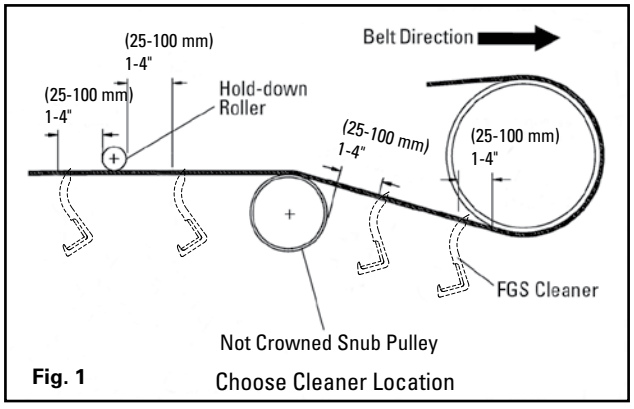


Fig. 1 Choose Cleaner Location

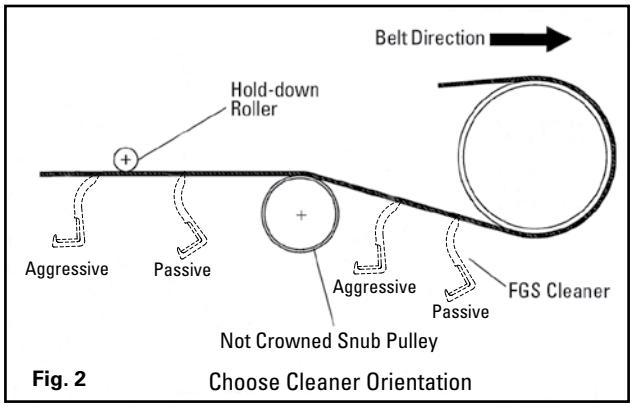


Fig. 2 Choose Cleaner Orientation

7. The bolt holes need to be transfer punched onto the conveyor structure in accordance with the FGS side plate fastener holes, as per Fig. 3, in such a way that at least two fasteners per side can be installed. If mounting cleaner was supplied with stand off bolts, install as per Fig. 4. If no stand offs are required, install side plates as per Fig. 5.
8. Once the cleaner is fully assembled into place, mark the mounting holes and remove the complete cleaner from the conveyor structure.
9. Back drill all holes using an 8 mm (5/16") drill. At least two bolt holes are needed per side plate as noted in the bolt hole diagram (Fig. 3).
10. Clean up or remove any metal shavings or burrs created during the cutting/drilling of the shaft and mounting bolt holes.

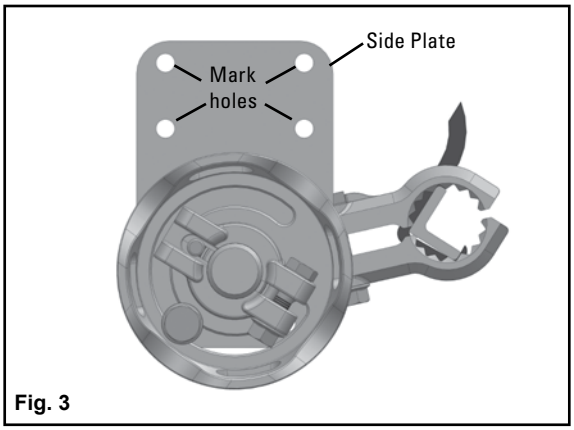


Fig. 3

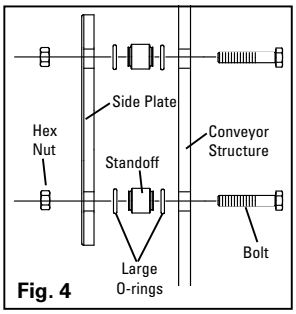


Fig. 4

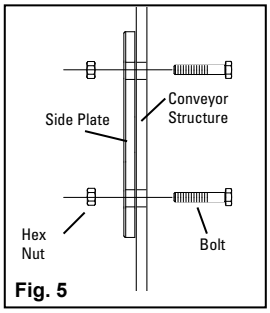


Fig. 5

Note: The Food Grade Secondary (FGS) cleaner will come fully assembled. You will have to determine if the "out of the box" configuration is the right one for your application (Figure A). The FGS will come with some accessories and an additional spring. This loose spring is a counterclockwise torsion spring for applications where the cleaner tensioner need to be installed on the opposite end (Figure B). In the case of cleaner blade lengths that exceed 1500 mm (60"), it will be necessary to use a dual tensioner mechanism (Figure C). This is necessary to provide even pressure across the length of the blade.

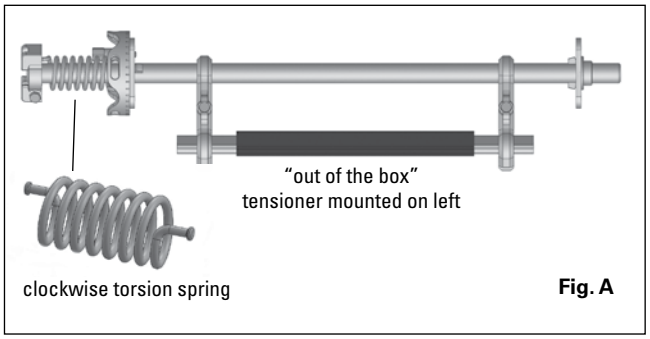


Fig. A

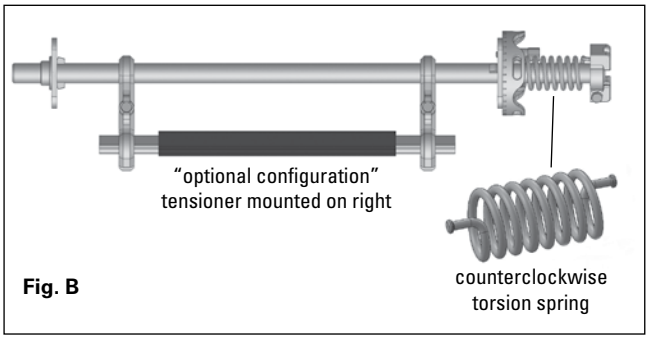


Fig. B

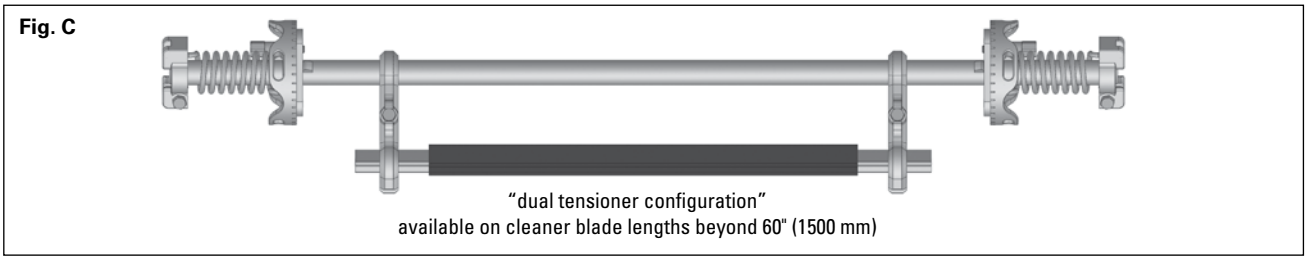


Fig. C

11. Determine which side of the conveyor has sufficient clearance to install the torsion spring mechanism. A horizontal distance of shaft length +152 mm (6") is required. Attach the Torsion Hub to the outside of the conveyor structure.

12. Attach opposite side mounting plate per Fig. 4 or Fig. 5.

Caution: It is the responsibility of the user to ensure that the mounting method is in compliance with your company's policies and any applicable legal or regulatory requirements.

13. Install shaft bushings on side plates and slide the shaft through the bushings in such a way that the torsion spring mechanism can be clamped to the shaft (Fig. 6).

14. Prior to engaging the shaft through both bushings, install the reaction arms on the shaft as shown (Fig. 6) inside the width of the conveyor structure.

15. Position shaft through Torsion Hub and through mounting plate bushing on opposite side (Fig. 7). Make sure the reaction arms are installed as per Fig. 7. Position them at least 25 mm (1") away from the side plates.

16. Install the cleaner blade to the support bar by tapping the blade into position (Fig. 8). Use a rubber mallet; be careful not to damage the blade.

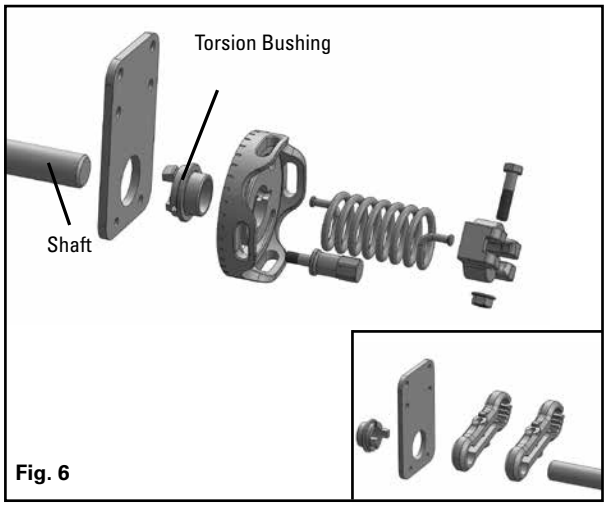


Fig. 6


Fig. 7

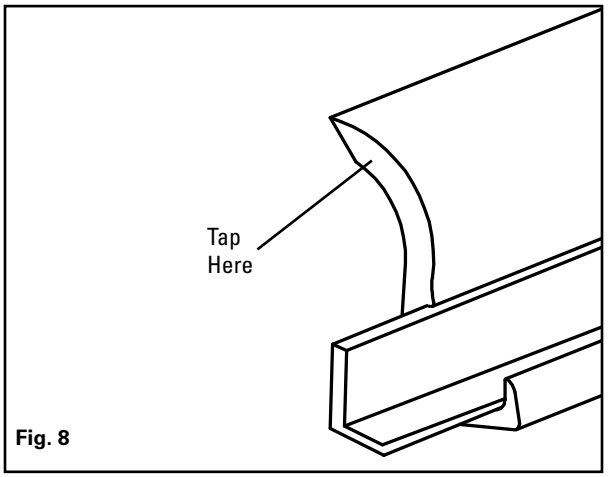
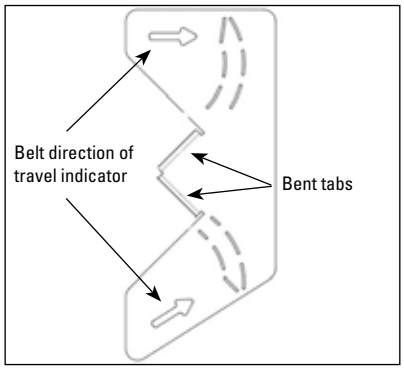


Fig. 8

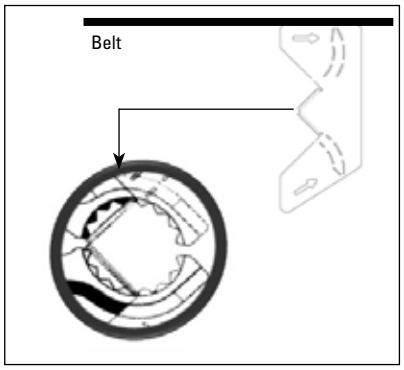
Section 4 - Installation Instructions - FGS (continued)

NOTICE:

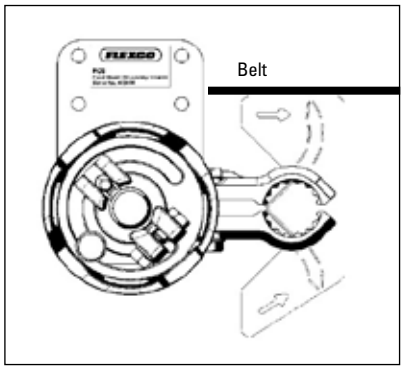
Before you proceed, determine the final position of the blade and bar assembly. Before completing step 17 take time to determine the appropriate blade position when contacting the blade.



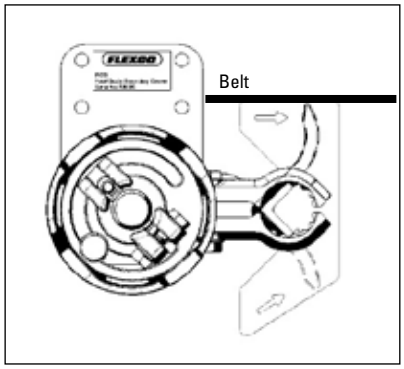
A) Use the FGS installation gauge to determine the correct blade to belt contact angle.



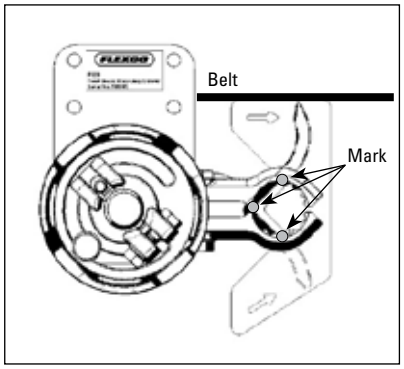
B) Orient the gauge arrow in the belt the direction of travel and position the gauge bent tabs inside the reaction arm spline.



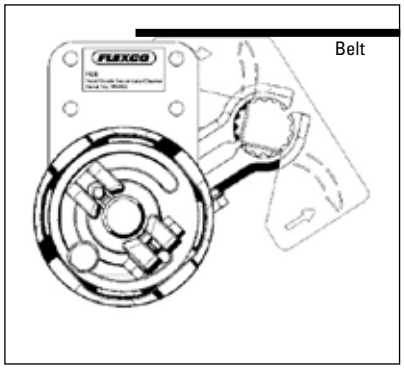
C) For cleaners that use a dual durometer blade use the long side of the gauge to determine correct blade to belt contact angle



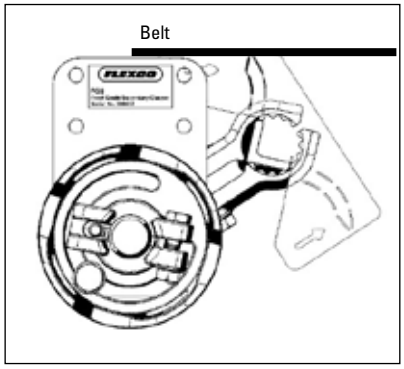
D) In this example we have a dual durometer blade properly contacting the belt, your blade and bar assembly will be positioned inside the spline in the correct starting location.



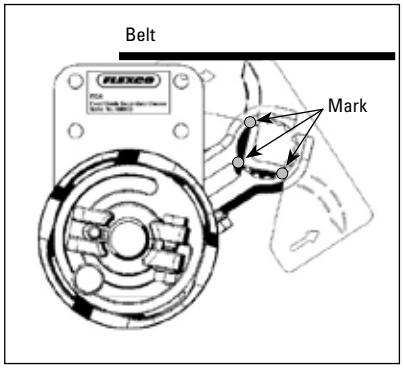
E) Mark the location of the tabs on the reaction arm for reference.



F) For cleaners that use a UHMW or metal detectable blade use the short side of the gauge to determine correct blade to belt contact angle.



G) In this example we have a UHMW blade properly contacting the belt, your blade and bar assembly will be positioned inside the spline in the correct starting location.



H) Mark the location of the tabs on the reaction arm for reference.

Proceed to Step 17

17. Attach the blade and bar sub assembly to the FGS reaction arms (Fig. 9). Slide the blade assembly bar inside the reaction arm spline.

18. Engage spline for the desired blade angle of attack to the belt.

Note: Ensure all 3 blade holder corners engage spline recesses. Also, the blade holder bar would ideally extend a minimum of 6 mm (1/4") beyond the reaction arm face (Fig. 10).

19. Ensure proper alignment between the bar and reaction arms by marking the position of the bar on the reaction arm spline (Fig. 9).

Note: In addition to marking the reaction arm splines after observing successful operation, mark the position of the Torsion Hub relative to the mounting plate.

Caution: Apply Food Grade Antiseize to all threaded joints, bolts, and nuts.

20. Insert the M8 x 45 hex screw inside the through hole of the reaction arm from the self wrenching side and tighten with the hex nut (Fig. 10).

21. With the blade hanging free downwards due to gravity, position the Torsion Hub slot against the set bolt at the extreme slot end. Full slot travel must be available for tensioning (Fig. 11).

22. With the blade and Torsion Hub positioning established, clamp the Locking Collar in place with the M8 x 35 Hex Screw and nut (antisieze required) (Fig. 11).

23. Tension Cleaning Blade to conveyor belt by rotating the Torsion Hub until blade is making contact with belt and light tension is felt in Torsion Hub (Fig. 12). Secure the Torsion Hub by tightening the set bolt.

24. While holding Torsion Hub in tension pre-set position, tighten set bolt ensuring that the torsion spring assembly is secured (Fig. 11).

Note: A screwdriver may be used to assist tensioning by engaging with the slots in the Torsion Hub.

25. Test run conveyor.

Note: Once the desired blade/belt angle of attack is established, permanently mark (light drill recess) the position of the bar on the reaction arm spline to ensure proper reassembly after future disassembly. In addition to marking the reaction arm splines after observing successful operation, mark the position of the Torsion Hub relative to the mounting plate.

Caution: Do not over-tension the cleaner blade as this may damage the cleaner or the conveyor belt.

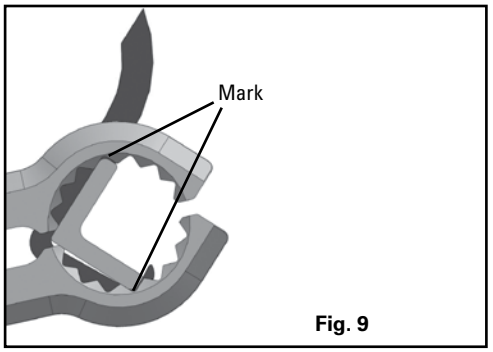


Fig. 9

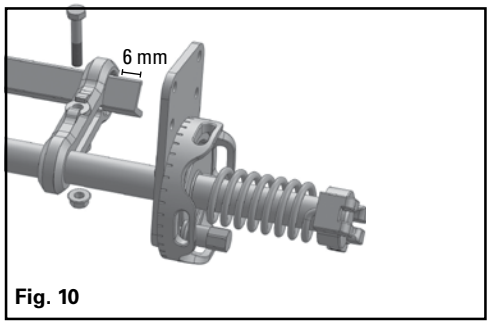


Fig. 10

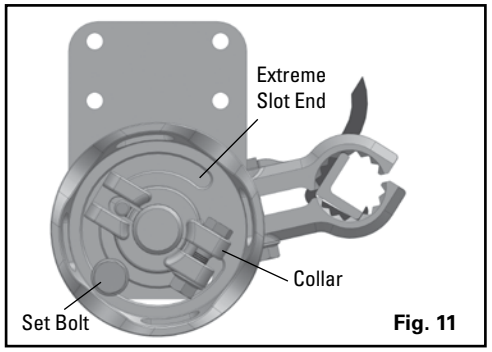


Fig. 11

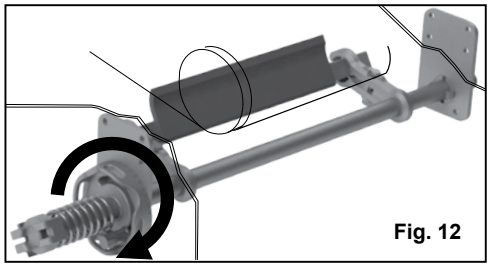


Fig. 12

NOTICE:
Cleaner has not been sanitized and must be cleaned and sanitized prior to use.

4.2 Left Hand Installation

Your FGS system comes fully assembled with a clockwise hand spring torsion mechanism (Fig. D). This is suitable when the adjustment needs to be done on the operator side of the conveyor belt.

In some cases, the need for having the torsion mechanism on the equipment side of the conveyor (Fig. E) requires a counter clockwise hand torsion mechanism.

1. Dismantle the FGS torsion mechanism by removing the set bolt first; this will release any residual tension on the system.
2. Loosen and remove the M8 x 35 mm hex bolt and flanged nut from the collar.
3. The collar will be free to rotate and slide out from the shaft.
4. As you remove the collar, the torsion hub and the spring will slide out of the shaft and can be taken apart.
5. Remove the clockwise hand spring and discard it.
6. Your FGS system will come with a counter clockwise hand spring in the box. Use this new spring to reassemble the torsion mechanism.

Caution: Apply Food Grade Antiseize to all threaded joints, bolts, and nuts.

7. Assemble the torsion mechanism on the opposite side of the cleaner by inserting the spring straight end inside the Torsion Hub slot.
8. Slide the Torsion Hub and counter clockwise torsion spring on the shaft until you have complete contact with the side plate, making sure it is completely aligned with the plastic bushing.
9. Install the set bolt until it contacts the torsion hub and back it one full turn.
10. Slide the shaft collar and align the free end of the torsion spring with the collar, making sure there is full insertion of the spring end inside the collar alignment slot.
11. Insert the M8 x 35 fastener and flanged nut in the collar and tighten the assembly until it is snug.
12. With the blade hanging free downward due to gravity, position the Torsion Hub slot against the set bolt at the extreme slot end. Full slot travel must be available for tensioning.
13. Clamp the shaft collar in place.
14. Tension Cleaning Blade to conveyor belt by rotating the Torsion Hub clockwise until blade is making contact with belt and light tension is felt in Torsion Hub (Fig. 10). Secure the Torsion Hub by tightening the set bolt.
15. While holding Torsion Hub in tension pre-set position, tighten set bolt ensuring that the torsion spring assembly is secured.
16. Test run conveyor.

Caution: Do not over-tension the cleaner blade as this may damage the cleaner or the conveyor belt.

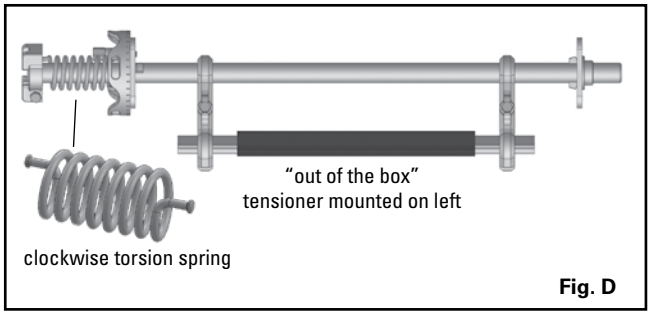


Fig. D

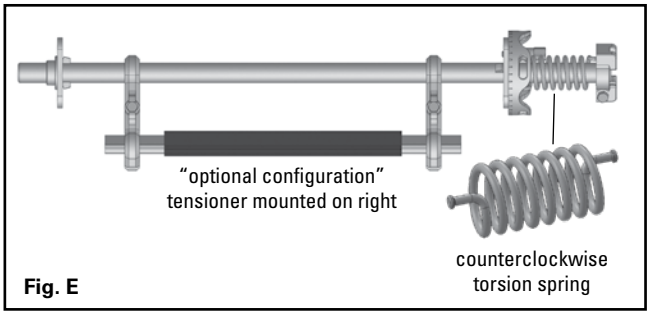


Fig. E

NOTICE:
Cleaner has not been sanitized and must be cleaned and sanitized prior to use.

4.3 FGS in a Precleaner Position

The first step in installing your FGS Food Grade Secondary cleaner in a precleaner position is to verify that there is adequate structure at the head pulley for mounting the cleaner.

NOTICE:

The FGS comes fitted with a secondary blade from the factory, you will have to buy a precleaner (FGP) blade from your distributor in order to operate the FGS in a precelaner postition. For additional information on the appropriate item code you need to buy please refer to the Precleaner Replacement Blade table.

1. Measure pulley diameter (A), including lagging and belt (Fig. 1).
2. Locate the overall pulley diameter that most closely matches yours on chart A, and use the corresponding X, Y, & C dimensions to locate the position of the center of the cleaner blade support bar (Fig. 1).

Chart A: Blade support bar location

A		X		Y		C	
in.	mm	in.	mm	in.	mm	in.	mm
2.0	51	0.95	24	2.98	76	3.13	80
2.5	64	1.19	30	3.03	77	3.25	83
3.0	76	1.44	37	3.08	78	3.39	86
3.5	89	1.68	43	3.12	79	3.55	90
4.0	102	1.93	49	3.17	81	3.71	94
4.5	114	2.18	55	3.22	82	3.88	99
5.0	127	2.42	61	3.27	83	4.06	103
5.5	140	2.67	68	3.31	84	4.25	108
6.0	152	2.91	74	3.36	85	4.45	113
6.5	165	3.16	80	3.41	87	4.64	118
7.0	178	3.40	86	3.46	88	4.85	123
7.5	191	3.65	93	3.51	89	5.06	129
8.0	203	3.89	99	3.55	90	5.27	134
8.5	216	4.14	105	3.60	91	5.48	139
9.0	229	4.38	111	3.65	93	5.70	145
9.5	241	4.63	118	3.70	94	5.92	150
10.0	254	4.88	124	3.74	95	6.14	156

A = Diameter of pulley + lagging thickness + belt thickness
C = Centerline of pulley to center line of blade support bar

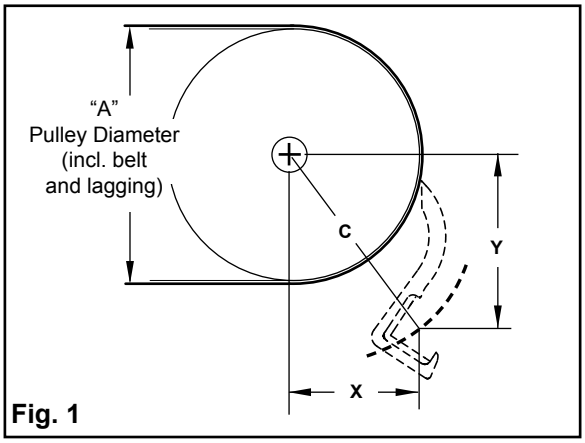


Fig. 1

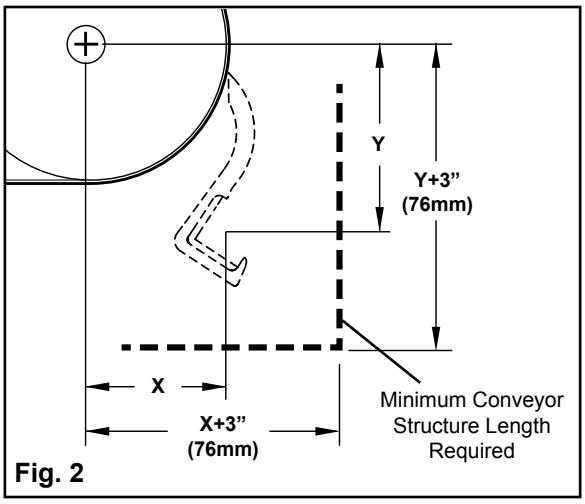


Fig. 2

3. On both sides of the pulley, ensure that the conveyor structure extends downward from the centerline of the pulley shaft the distance Y + 3" and that it extends horizontally from the centerline of the pulley shaft the distance X + 3". If there is not adequate conveyor structure, go to step 4 below. If the structure is adequate, skip to Section 4 – Installation Instructions.

4. Add the required amount of structure to the conveyor so that it extends to the Y + 3" and X + 3" dimensions from the centerline of the pulley shaft. **Note:** A minimum of three mounting bolts are required if bolting belt cleaner to structure.
5. Proceed to Section 5.

Precleaner Replacement Blades

DESCRIPTION	ORDERING NUMBER	ITEM CODE	WT. LBS.
12" (305 mm) Blue Blade	FGB-BL3-12/305	56531	0.5
18" (457 mm) Blue Blade	FGB-BL3-18/457	56532	0.7
24" (610 mm) Blue Blade	FGB-BL3-24/610	56533	0.9
30" (762 mm) Blue Blade	FGB-BL3-30/762	56534	1.2
36" (914 mm) Blue Blade	FGB-BL3-36/914	56535	1.4
42" (1067 mm) Blue Blade	FGB-BL3-42/1067	56536	1.6
48" (1219 mm) Blue Blade	FGB-BL3-48/1219	56537	1.8
54" (1372 mm) Blue Blade	FGB-BL3-54/1372	56538	2.1
60" (1524 mm) Blue Blade	FGB-BL3-60/1524	56539	2.3
12" (305 mm) White Blade	FGB-W3-12/305	56540	0.5
18" (457 mm) White Blade	FGB-W3-18/457	56541	0.7
24" (610 mm) White Blade	FGB-W3-24/610	56542	0.9
30" (762 mm) White Blade	FGB-W3-30/762	56543	1.2
36" (914 mm) White Blade	FGB-W3-36/914	56544	1.4
42" (1067 mm) White Blade	FGB-W3-42/1067	56545	1.6
48" (1219 mm) White Blade	FGB-W3-48/1219	56546	1.8
54" (1372 mm) White Blade	FGB-W3-54/1372	56547	2.1
60" (1524 mm) White Blade	FGB-W3-60/1524	56548	2.3
12" (305 mm) Metal Detectable Blade	FGB-MD3-12/305	56558	0.5
18" (457 mm) Metal Detectable Blade	FGB-MD3-18/457	56559	0.7
24" (610 mm) Metal Detectable Blade	FGB-MD3-24/610	56560	0.9
30" (762 mm) Metal Detectable Blade	FGB-MD3-30/762	56561	1.2
36" (914 mm) Metal Detectable Blade	FGB-MD3-36/914	56562	1.4
42" (1067 mm) Metal Detectable Blade	FGB-MD3-42/1067	56563	1.6
48" (1219 mm) Metal Detectable Blade	FGB-MD3-48/1219	56564	1.8
54" (1372 mm) Metal Detectable Blade	FGB-MD3-54/1372	56565	2.1
60" (1524 mm) Metal Detectable Blade	FGB-MD3-60/1524	56566	2.3

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, loosen set bolt.
- Rotate Torsion Hub to adjust tension as is required for application. Do not over tension the spring.
- Rotate the hub until the desired cleaning performance is achieved.
  - In the case of cleaners with dual tensioners, this operation has to be performed simultaneously on both sides of the cleaner.
- Tighten the set bolt.

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 blade holder in the reaction arm spline.

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:

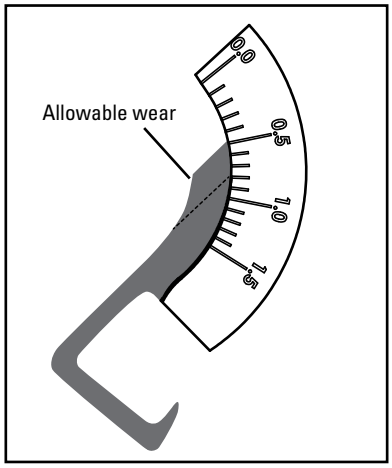
- Clean material buildup off of the cleaner blade and shaft.
- Closely inspect the blade for wear and any damage. Replace if needed.
- Ensure full blade to belt contact.
- Inspect the cleaner shaft for damage.
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any 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. Do not over-tension the spring.
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing properly.

6.4 Cleaning Instructions

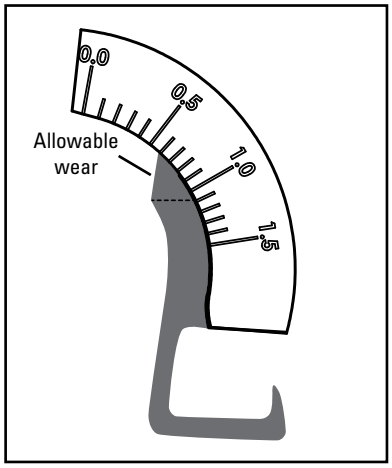
Follow recommended cleaning, foaming, and rinsing procedures as per your maintenance department guidelines.

6.5 Blade Wear Inspection

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



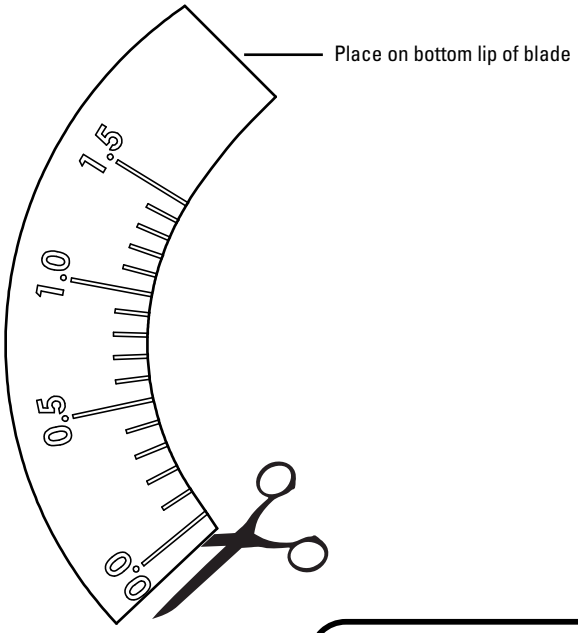
Blade Wear Measurement Using Gauge (see below) - Maximum allowable wear with blade in trailing position



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.

Blade Wear Indicator Gauge
Copy and cut out for use



6.6 Blade Replacement Instructions

Removal of Cleaning Blade

1. Relieve tension on FGS system blade (Fig. 13).
2. Release the tension on the shaft by unlocking the set bolt and turning the Torsion Hub 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 blade back while holding the bar.
5. Blade should snap free from belt cleaner bar.
6. Remove blade.

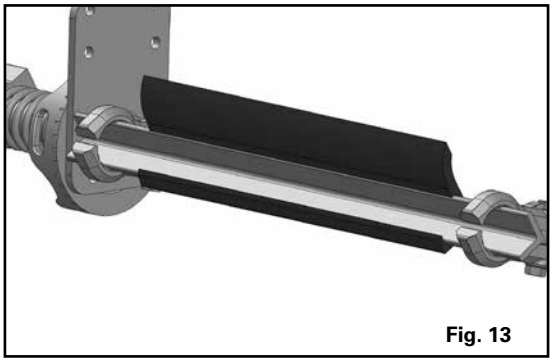


Fig. 13

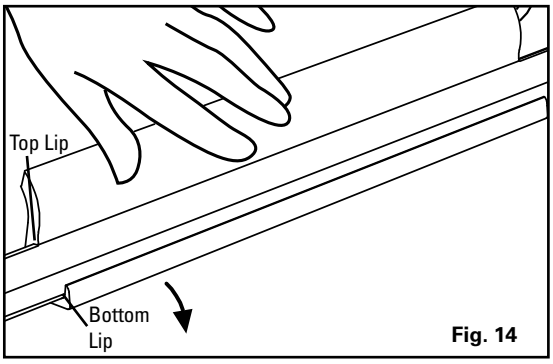


Fig. 14

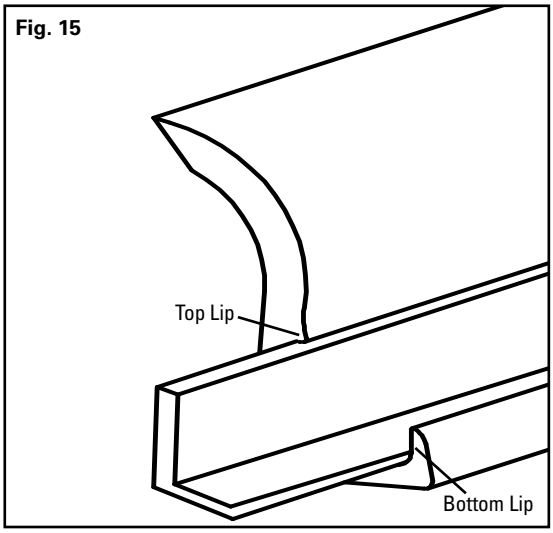
Installation of Cleaning Blade

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. 15



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 # _____

Activity: _____

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

Activity: _____

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

Activity: _____

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

Activity: _____

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:

Conveyor Number:_____ Belt Condition: _____

Belt Width: ☐ 12" (300 mm) ☐ 18" (450 mm) ☐ 24" (600 mm) ☐ 30" (750 mm) ☐ 36" (900 mm) ☐ 42" (1050 mm) ☐ 48 (1200 mm) ☐ 54" (1350 mm) ☐ 60" (1500 mm)

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 height: Left _____ Middle _____ Right _____

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

Was Cleaner Adjusted: ☐ Yes ☐ No

Shaft Condition: ☐ Good ☐ Bent ☐ Worn

Lagging: ☐ Slide lag ☐ Ceramic ☐ Rubber ☐ Other ☐ None

Condition of lagging: ☐ Good ☐ Bad ☐ Other _____

Cleaner's Overall Performance: (Rate the following 1 - 5, 1 = very poor - 5 = very good)

Appearance: ☐ Comments:_____

Location: ☐ Comments:_____

Maintenance: ☐ Comments:_____

Performance: ☐ Comments:_____

Other Comments:_____

_____

_____

_____

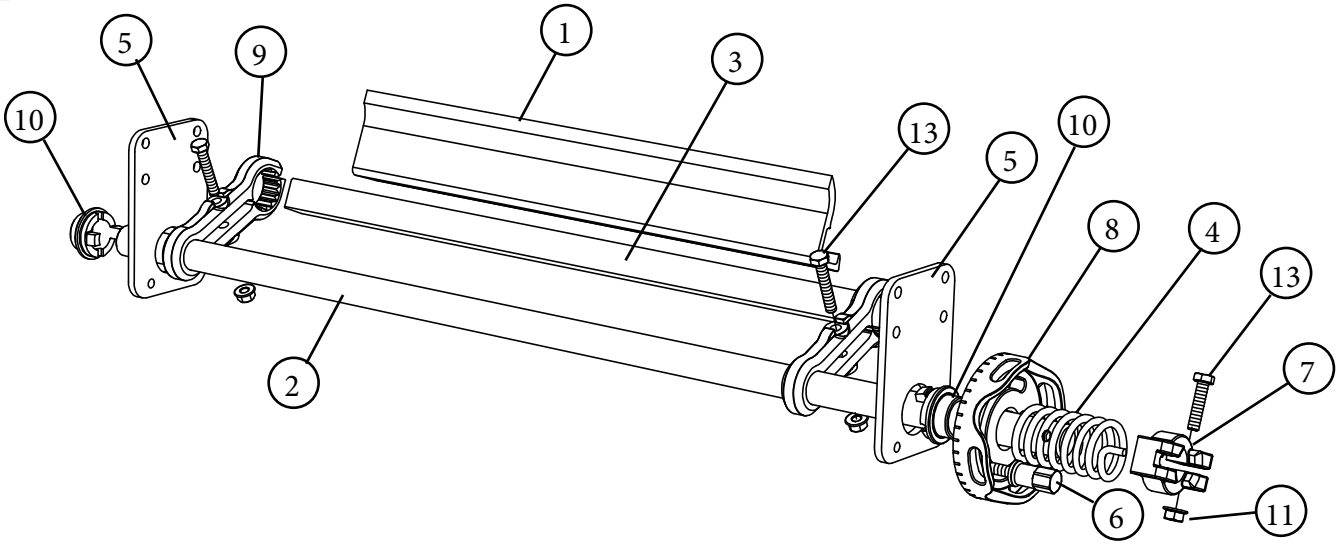
_____

_____

Section 7 - Troubleshooting

Problem	Possible Cause	Possible Solutions
Poor cleaning performance	Excessive build-up on cleaner	Inspect blade, bushings, and shaft for material buildup
	Cleaner under-tensioned	Increase tension incrementally and reevaluate
	Cleaner over-tensioned	Decrease tension incrementally and reevaluate
	Cleaner installed in wrong location	Relocate to correct location
	Cleaner blade worn or damaged	Replace cleaner blade
Rapid blade wear	Excessive build-up on cleaner	Inspect blade, bushings, and shaft for material buildup
	Cleaner under-tensioned	Increase tension incrementally and reevaluate
	Cleaner over-tensioned	Decrease tension incrementally and reevaluate
	Cleaner installed in wrong location	Relocate to correct location
	Excessively abrasive material	More frequent blade adjustment and replacement may be necessary
	Mechanical splice damaging blade	Repair, skive, or replace splice
Excessive center wear on blade (smile effect)	Blade wider than material path	Replace blade with width appropriate for material path
	Cleaner under-tensioned	Increase tension incrementally and reevaluate
	Crowned pulley	Changed to a straight pulley
Unusual wear, flash, or damage to blade	Excessive build-up on cleaner	Inspect blade, bushings, and shaft for material buildup
	Mechanical splice damaging blade	Repair, skive, or replace splice
	Belt damaged or ripped	Repair or replace belt
	Cleaner installed in wrong location	Relocate to correct dimension
	Blade angle of attack	Reposition blade bar assembly within the spline
Vibration or noise	Excessive build-up on cleaner	Inspect blade, bushings, and shaft for material buildup
	Cleaner installed in wrong location	Relocate to correct dimension
	Cleaner under-tensioned	Increase tension incrementally and reevaluate
	Cleaner over-tensioned	Decrease tension incrementally and reevaluate
	Cleaner mounting not secure	Check and tighten all bolts and nuts
	Cleaner not square to head pulley	Relocate to correct position
	Material build-up in chute	Remove build-up on cleaner and in chute
	Blade angle of attack	Reduce tension or change angle of attack
Cleaner being pushed away from belt	Excessive build-up on cleaner	Inspect blade, bushings, and shaft for material buildup
	Cleaner under-tensioned	Increase tension incrementally and reevaluate
	Cleaner over-tensioned	Decrease tension incrementally and reevaluate
	Sticky material is overburdening cleaner	Increase tension incrementally and reevaluate
	Blade angle of attack	Confirm location of blade bar is equal on both reaction arms

Replacement Parts List



FGS FOOD GRADE SECONDARY CLEANER REPLACEMENT BLADES

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
1	12" (305 mm) Blue Blade	FGB-BL2-12/305 RPL BLADE BLUE	57100
	18" (457 mm) Blue Blade	FGB-BL2-18/457 RPL BLADE BLUE	57101
	24" (610 mm) Blue Blade	FGB-BL2-24/610 RPL BLADE BLUE	57102
	30" (762 mm) Blue Blade	FGB-BL2-30/762 RPL BLADE BLUE	57103
	36" (914 mm) Blue Blade	FGB-BL2-36/914 RPL BLADE BLUE	57104
	42" (1067 mm) Blue Blade	FGB-BL2-42/1067 RPL BLADE BLUE	57105
	48" (1219 mm) Blue Blade	FGB-BL2-48/1219 RPL BLADE BLUE	57106
	54" (1372 mm) Blue Blade	FGB-BL2-54/1372 RPL BLADE BLUE	57107
	60" (1524 mm) Blue Blade	FGB-BL2-60/1524 RPL BLADE BLUE	57108
	66" (1676 mm) Blue Blade	FGB-BL2-66/1676 RPL BLADE BLUE	57109
	72" (1828 mm) Blue Blade	FGB-BL2-72/1828 RPL BLADE BLUE	57110
	12" (305 mm) White Blade	FGB-W2-12/305 RPL BLADE WHT	57120
	18" (457 mm) White Blade	FGB-W2-18/457 RPL BLADE WHT	57121
	24" (610 mm) White Blade	FGB-W2-24/610 RPL BLADE WHT	57122
	30" (762 mm) White Blade	FGB-W2-30/762 RPL BLADE WHT	57123
	36" (914 mm) White Blade	FGB-W2-36/914 RPL BLADE WHT	57124
	42" (1067 mm) White Blade	FGB-W2-42/1067 RPL BLADE WHT	57125
	48" (1219 mm) White Blade	FGB-W2-48/1219 RPL BLADE WHT	57126
	54" (1372 mm) White Blade	FGB-W2-54/1372 RPL BLADE WHT	57127
	60" (1524 mm) White Blade	FGB-W2-60/1524 RPL BLADE WHT	57128
	66" (1676 mm) White Blade	FGB-W2-66/1676 RPL BLADE WHT	57129
	72" (1828 mm) White Blade	FGB-W2-72/1828 RPL BLADE WHT	57130
	12" (305 mm) Metal Detectable Blade	FGB-MD2-12/305 RPL BLD MTL DT	57140
	18" (457 mm) Metal Detectable Blade	FGB-MD2-18/457 RPL BLD MTL DT	57141
	24" (610 mm) Metal Detectable Blade	FGB-MD2-24/610 RPL BLD MTL DT	57142
	30" (762 mm) Metal Detectable Blade	FGB-MD2-30/762 RPL BLD MTL DT	57143
	36" (914 mm) Metal Detectable Blade	FGB-MD2-36/914 RPL BLD MTL DT	57144
	42" (1067 mm) Metal Detectable Blade	FGB-MD2-42/1067 RPL BLD MTL DT	57145
	48" (1219 mm) Metal Detectable Blade	FGB-MD2-48/1219 RPL BLD MTL DT	57146
	54" (1372 mm) Metal Detectable Blade	FGB-MD2-54/1372 RPL BLD MTL DT	57147
	60" (1524 mm) Metal Detectable Blade	FGB-MD2-60/1524 RPL BLD MTL DT	57148
	66" (1676 mm) Metal Detectable Blade	FGB-MD2-66/1676 RPL BLD MTL DT	57149
	72" (1828 mm) Metal Detectable Blade	FGB-MD2-72/1828 RPL BLD MTL DT	57150
	12" (305 mm) Dual Durometer Blade	FGB-MDDD3-12/305	56549
	18" (457 mm) Dual Durometer Blade	FGB-MDDD3-18/457	56550
	24" (610 mm) Dual Durometer Blade	FGB-MDDD3-24/610	56551
	30" (762 mm) Dual Durometer Blade	FGB-MDDD3-30/762	56552
	36" (914 mm) Dual Durometer Blade	FGB-MDDD3-36/914	56553
	42" (1067 mm) Dual Durometer Blade	FGB-MDDD3-42/1067	56554
	48" (1219 mm) Dual Durometer Blade	FGB-MDDD3-48/1219	56555
	54" (1372 mm) Dual Durometer Blade	FGB-MDDD3S-54/1372 RPL BLD MDDD	57173
	60" (1524 mm) Dual Durometer Blade	FGB-MDDD3S-60/1524 RPL BLD MDDD	57174
	66" (1676 mm) Dual Durometer Blade	FGB-MDDD3S-66/1676 RPL BLD MDDD	57175
	72" (1828 mm) Dual Durometer Blade	FGB-MDDD3S-72/1828 RPL BLD MDDD	57176

FGS FOOD GRADE SECONDARY CLEANER REPLACEMENT PARTS

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
	30" (762 mm) Shaft	FGS-S-30/762 REPL SHAFT	57180
	36" (914 mm) Shaft	FGS-S-36/914 REPL SHAFT	57181
	42" (1067 mm) Shaft	FGS-S-42/1067 REPL SHAFT	57182
	48" (1219 mm) Shaft	FGS-S-48/1219 REPL SHAFT	57183
	54" (1372 mm) Shaft	FGS-S-54/1372 REPL SHAFT	57184
	60" (1524 mm) Shaft	FGS-S-60/1524 REPL SHAFT	57185
	66" (1676 mm) Shaft	FGS-S-66/1676 REPL SHAFT	57186
	78" (1981 mm) Shaft	FGS-S-78/1981 REPL SHAFT	57187
	84" (2134 mm) Shaft	FGS-S-84/2134 REPL SHAFT	57188
	90" (2286 mm) Shaft	FGS-S-90/2286 REPL SHAFT	57189
	96" (2438 mm) Shaft	FGS-S-96/2438 REPL SHAFT	57190
	102" (2591 mm) Shaft	FGS-S-102/2591 REPL SHAFT	57191
2	108" (2743 mm) Shaft	FGS-S-108/2743 REPL SHAFT	57192
	18" (457 mm) Blade Support Bar	FGS-B-18/457 REPL BAR	57200
	24" (610 mm) Blade Support Bar	FGS-B-24/610 REPL BAR	57201
	30" (762 mm) Blade Support Bar	FGS-B-30/762 REPL BAR	57202
	36" (914 mm) Blade Support Bar	FGS-B-36/914 REPL BAR	57203
	42" (1067 mm) Blade Support Bar	FGS-B-42/1067 REPL BAR	57204
	48" (1219 mm) Blade Support Bar	FGS-B-48/1219 REPL BAR	57205
	54" (1372 mm) Blade Support Bar	FGS-B-54/1372 REPL BAR	57206
	60" (1524 mm) Blade Support Bar	FGS-B-60/1524 REPL BAR	57207
	66" (1676 mm) Blade Support Bar	FGS-B-66/1676 REPL BAR	57208
	72" (1829 mm) Blade Support Bar	FGS-B-72/1829 REPL BAR	57209
	78" (1981 mm) Blade Support Bar	FGS-B-78/1981 REPL BAR	57210
	84" (2134 mm) Blade Support Bar	FGS-B-84/2134 REPL BAR	57211
3	90" (2286 mm) Blade Support Bar	FGS-B-90/2286 REPL BAR	57212

FGS FOOD GRADE SECONDARY CLEANER REPLACEMENT HARDWARE

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
5	End Plate	FGS-MP MOUNTING PLATE	57250
	End Plate - Europe	FGS-EU-MP MOUNTING PLATE	57251
6	Set Bolt	FGS-PB POSITIONING BOLT	57252
7	Collar	FGS-CS SHAFT COLLAR	57253
8	Torsion Hub Plate	FGS-PP POSITIONING PLATE	57254
9	Reaction Torque Arm	FGS-TA TORQUE ARM	57255
10	Plastic Bushing	FGS-SB SNAP BUSHING	57256
	Hardware kit	FGSHWKIT REPL HARDWARE KIT	57257
11	Nut - Stainless	NUT FLANGED M8X1,25 SS	GT207
12	Screw Stainless 1.25x35	SCRE HEX M8-1.25X35 PARTIAL THD, SS	GT208
13	Screw Stainless 1.25x45	SCRE HEX M8-1.25X45 PARTIAL THD, SS	GT209

FGS FOOD GRADE SECONDARY CLEANER REPLACEMENT SPRINGS

REF	DESCRIPTION	ORDERING NUMBER	ITEM CODE
4	Torsion Spring - Left	FGTC-L-7.5 TORSION COIL SPRING	57220
	Torsion Spring - Right	FGTC-R-7.5 TORSION COIL SPRING	57221

FGS FOOD GRADE SECONDARY CLEANER SPECIFICATIONS

Temperature Range	UHMW: -20°F to 140°F (-29°C to 60°C)
	Dual Durometer: +32°F to 140°F (0°C to 60°C)
Blade Height	UHMW, MD 2.0" (50 mm) / Dual Durometer 3.0" (76 mm)
Usable Blade Wear Length (pulley size dependent)	2" - 2.6" (50-66 mm)
Blade Length Range	12"-72" (305-1828 mm)
Blade Material	Food-grade UHMW, UHMW with Stainless Steel, or Urethane with PVC*
Blade Hardness	UHMW: 63D Shore Hardness
	Urethane: 85A Shore Hardness
Pole/Mounting Material	304 Stainless Steel

*Urethane with PVC blades are not Canada Health or CE 1935/2004 approved.

FLEXCO

EU Declaration of Compliance Statement

Product: FGS Belt Secondary Cleaners (white, blue and metal detectable blue versions), with UHMWPE Blades –

Assembly
57000 through 57012
57020 through 57032
57040 through 57052

Blades	
57100 through 57112	Blue UHMWPE
57120 through 57132	White UHMWPE
57140 through 57152	Blue Metal Detectable UHMWPE

Intended applications: For use in contact with all food types, up to 60° C.

Framework regulation (EC) No. 1935/2004: (Applicable to all food contact materials)
The above FGS Belt Secondary Cleaners comply with the applicable requirements of Regulation (EC) no.1935/2004 on Materials and Articles intended to come into contact with food including Article 3 (General Requirements) and Article 17 (Traceability).

Good Manufacturing Practice Regulation (EC) No. 2023/2006: (Applicable to all food contact materials)
The above products are manufactured under a quality assurance system which meets the requirements of Regulation (EC) no. 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food.

Commission regulation (EU) No.10/2011 on plastic materials intended to come into contact with food:
UHMWPE plastic blades used with the belt secondary cleaners are in compositional compliance with EU Regulation 10/2011, including its updates to the date of this statement (Regulations 1282/2011, 1183/2012, 202/2014, 174/2015, 2016/1416, 2017/752, 2018/79, 2018/213, 2018/831, 2019/37 and 2019/1338). The metal detectable additive used in the blue blade is also listed. Colorants are suitable for use in food contact plastics.

When used as intended, levels of overall migration and specific migration of any substances subject to restriction will not exceed the legal limits (calculated as 6 dm^2 blade per 1kg of food).

This compliance statement is based on information received from material suppliers, migration testing as below undertaken according to Regulation 10/2011, migration modelling and quality control systems in place at Flexco. Supporting documents are available and can be disclosed to the competent authority on request.

Test Simulants	Food Types	Testing Condition
A (10% ethanol), B (3% acetic acid), D2 (Vegetable oil screening substitute isooctane) of Regulation No.10,2011 for Plastic Materials and Articles in contact with food	All dry, aqueous, acidic and fatty foods	OM5 2 hours at 100°C or equivalent

Dual use food additives:
No migratory dual use food additives or authorised food flavourings covered respectively by Regulation (EC) No. 1333/2008 or Regulation (EC) No. 1334/2008 or their implementing measures are understood to be used in the manufacture of the belt secondary cleaners.

Stainless Steel Components
In use of the belt secondary cleaner, the specific metal release limits of the Council of Europe (COE) Resolution CM/Res (2013) 9 on metals and alloys used in food contact materials will not be exceeded.

US FDA Compliance
The blade material complies with US FDA 21 CFR part 177.1520 "Olefin Polymers, Specifications 2.1 and 2.1 and is suitable for use with all types of food, all conditions of use as detailed in Tables 1 and 2 of 21 CFR Part 176.170.

Additional Information

REACH (Registration, Evaluation, Authorization and Restriction of Chemicals)
The FGS Belt Secondary Cleaner Is not manufactured or formulated with any of the Substances of Very High Concern (SVHC) as per the European REACH candidate list as of the date of this regulatory statement.

This Declaration is for the product specified above. An updated statement will be provided if the information on which the declaration is based changes or regulatory requirements impact on its validity.

Date: 29/09/2020

Doug Saunders, Director of Manufacturing Operations-North America —Flexco Grand Rapids

BAKING INDUSTRY SANITATION STANDARDS COMMITTEE

1213 Bakers Way, PO Box 3999, Manhattan, KS 66505-3999 866-342-4772 or 785-537-4750
bissc@bissc.org www.bissc.org

2020
THIRD-PARTY VERIFIED

Authorization No. **1197**

Company: **Flexible Steel Lacing Company dba Flexco**

Address: **2525 Wisconsin Ave, Downers Grove, Illinois, 60515, United States of America**

is hereby authorized to apply the BISSC Symbol to the model(s) of equipment listed below, conforming to the ANSI/ASB/Z50.2-2015 sanitation standard, for the twelve months beginning January 1, 2020 and ending December 31, 2020.

Standard Reference(s): **3.0 General Principles of Design, Construction and Cleaning for All Bakery Equipment**
4.7 Design Requirements for Conveyors

Model Designation: Food Grade Secondary Cleaner: Blue UHMW Blade: Series 57000-57012; White UHMW Blade: Series 57020-57032; Blue Metal Detectable UHMW Blade: Series 57040-57052; Blue Metal Detectable Dual Durometer Blade: Series 57060-57072.

President

The issuance of Authorization for the use of the BISSC Verified Symbol is based upon independent inspection that the equipment listed above complies fully with the ANSI/ASB/Z50.2-2015 standard reference(s) specified. Legal responsibility for compliance is solely that of the holder of this Certificate of Verification, BISSC does not warrant that the holder of a verification certificate at all times complies with the provisions of the designated standard(s). This in no way affects the responsibility of BISSC to take appropriate action in cases where evidence of non-compliance by the holder of a verification certificate has been established.

Health Canada Santé Canada

Bureau of Chemical Safety
Food Directorate, Health Canada
251 Sir Frederick Banting Drwy
Postal Locator: 2201C
Ottawa, Ontario, K1A 0K9, Canada

October 26, 2020

Our files: KS20071602/03/04
X-ref: KP16080303 and KP15080703
KP16080302 and KP15080703
KP16080304 and KP15080703

Timothy A. Gunter Jr.
Product Compliance Engineer
Flexco
tgunter@flexco.com

Dear Mr. Gunter Jr.,

RE: Food Grade Secondary Cleaner with blade GT210 (White UHMW)
Food Grade Secondary Cleaner with blade GT211 (Blue UHMW)
Food Grade Secondary Cleaner with blade GT212 (Blue Metal Detachable UHMW)

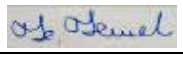
This is in response to your email of July 16, 2020, seeking our comments on the acceptability of the subject products for use in food contact applications.

The subject scrapers will be used on conveyor belts carrying meat, poultry and dairy products at a maximum temperature of 60^0C.

Based on the information submitted, we can advise that we see no reason to object to the use of the subject products as intended, provided they are technically suitable for the proposed end-uses.

Please note that this opinion is applicable only to the acceptability of these products with respect to its chemical safety for its intended uses in food contact applications under the authority of the Division 23 of the Food and Drug Regulations. This opinion does not exempt these products and their constituent substances from other legal requirements or from other reporting requirements related to their manufacture, or import, if applicable. It is your responsibility to ensure that these products comply with all legal and reporting requirements, which are relevant to their manufacture, import or use.

Yours truly,

X 

Signed by: Emelianova, E

Elena Emelianova, Ph.D.
Scientific Evaluator
Food Packaging Materials and Incidental Additives Section
Chemical Health Hazard Assessment Division

Canada

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