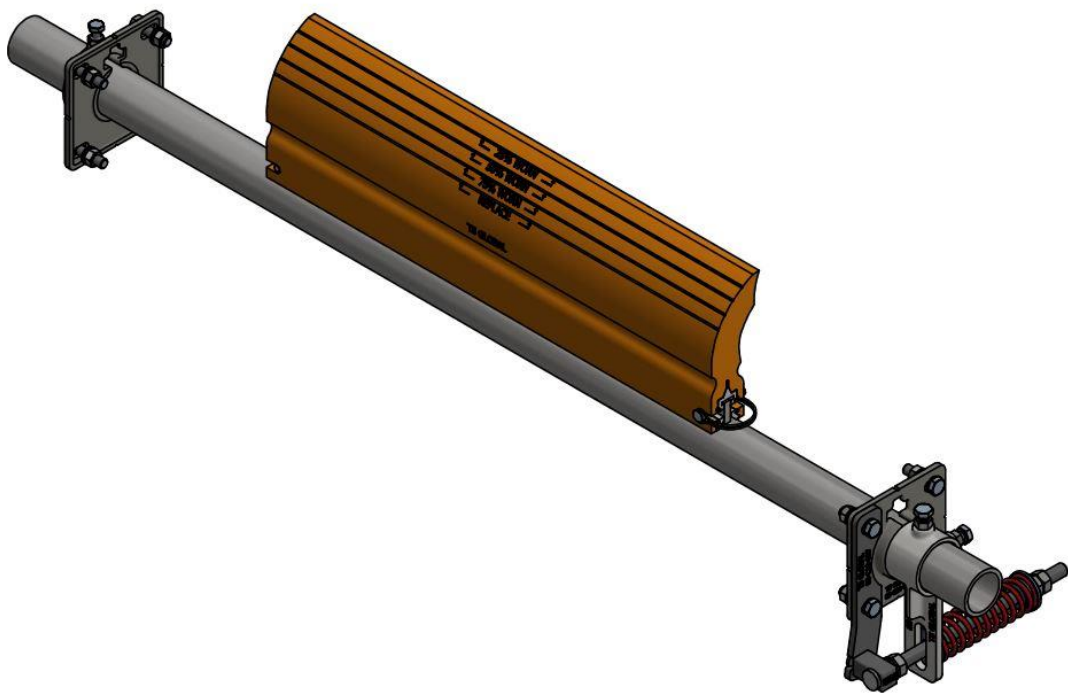


EP

Belt Cleaner



TSGlobal
Conveyor & Polyurethane Specialists

Installation, Operation and Maintenance Manual

Revision History

Rev	Date	Description	Document Owner
01	26/05/2020	EP Belt Cleaner	Ray Macarthur
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Section 1 – Important Information

General Information

TS Global is pleased that you have selected one of our products for your conveyor system.

This manual will assist in the understanding and operation of the product and allow it to perform at its maximum efficiency.

For safe and efficient operation, it is essential that the information and guidelines presented be properly understood and implemented. This manual will provide safety precautions, storage advice, installation instructions, maintenance procedures, recommended spares and troubleshooting tips.

If, however, you have any questions or problems that are not covered in this manual, please contact the nearest authorised distributor, or visit our website. www.tsglobal.net.au

All persons directly responsible for the installation, operation and maintenance of this product should read this manual thoroughly. Whilst we have attempted to make the installation and service tasks as simple as possible, optimum performance from the product will require correct installation, regular inspections, adjustments, and maintenance to maintain maximum efficiency.

User Benefits

Ensuring the correct installation and regular maintenance tasks are performed, our product will provide the following benefits to your operation:

- Increase conveyor availability and reliability.
- Reduced man-hour labour requirements.
- Lower maintenance costs.
- Increased service life for the cleaner and other conveyor components.
- Reduction in Safety Hazards around conveyor.
- Reduction in Environmental Impact.

Service Option

This product is designed to be easily installed and serviced by your on-site personnel, however, if you would prefer a complete turn-key service, please contact TS Global for a list of your nearest distributors.

Warranty

The warranty provided by TS Global Pty Limited (“TS Global”) is set out in the TS Global Terms and Conditions of Sale at clauses 6.1 to 6.5 inclusive. Those clauses are set out below: -

6.1 Subject to these conditions of sale, TS GLOBAL warrants that the Goods are free of defects both in material and workmanship and are of merchantable quality. The liability of TS GLOBAL pursuant to this warranty or any other warranty implied by operation of any statute including the Competition and Consumer Act 2010 (Cth) (as amended) shall be limited to the cost of replacing defective Goods, the cost of obtaining equivalent Goods, or the cost of repairing the Goods at TS GLOBAL’s discretion provided that in all such cases any costs of dismantling and reassembly shall be borne by the Customer.

6.2 The warranty set out at clause 6.1 is subject to the following:

- a) the warranty applies for a period of 12 months commencing on the date of invoice of the Goods;
- b) the warranty does not apply to consumable components that are subject to normal wear and tear;
- c) the Customer must provide TS GLOBAL with either an invoice number or purchase order number referencing the defective Goods;

- d) the defects to the Goods must have arisen solely from faulty materials or workmanship; and
- e) the damage to the Goods must not arise from:
 - i. incorrect installation of the Goods contrary to the instructions contained within TS Global's Installation and Operation Manuals;
 - ii. improper adjustment, calibration or operation by the Customer;
 - iii. the use of accessories including consumables, hardware, or software which were not manufactured by or approved in writing by TS GLOBAL
 - iv. any contamination or leakages caused or induced by the Customer
 - v. any modifications of the Goods which was not authorised in writing by TS GLOBAL;
 - vi. any misuse of the Goods by the Customer;
 - vii. any use or operation of the Goods outside of the physical, electrical or environmental specifications of the Goods;
 - viii. inadequate or incorrect site preparation;
 - ix. inadequate or improper maintenance of the Goods; or
 - x. incorrect handling of the Goods.

6.3 If the Goods are not manufactured by TS GLOBAL the guarantee of the manufacturer of those Goods is accepted by the Customer and is the only guarantee given to the Customer in respect of the Goods. TS GLOBAL agrees to assign to the Customer on request made by the Customer the benefit of any warranty or entitlement to the Goods that the manufacturer has granted to TS GLOBAL under any contract or by implication or operation of law to the extent that the benefit of any warranty or entitlement is assignable.

6.4 Except as provided in these conditions, all express and implied warranties, guarantees and conditions under statute or general law as to merchantability, description, quality, suitability or fitness of the Goods for any purpose or as to design, assembly, installation, materials or workmanship or otherwise are expressly excluded. TS GLOBAL is not liable for physical or financial injury, loss or damage or for consequential loss or damage of any kind arising out of the supply, layout, assembly, installation or operation of the Goods or arising out of TS GLOBAL's negligence or in any way.

6.5 Nothing in these conditions shall be read or applied so as to exclude, restrict or modify or have the effect of excluding, restricting or modifying any condition, warranty, guarantee, right or remedy implied by law (including the Competition and Consumer Act 2010) and which by law cannot be excluded, restricted or modified.

This Warranty Statement must be read in conjunction with TS Global's Terms and Conditions of Sale which can be located on our website www.tsglobal.net.au

Section 2 – Safety Considerations, Precautions and Correct Storage

Before installing, operating, inspecting or maintaining this product, it is important to follow and understand all relevant site and statutory regulations. Please review the following safety information.



All statutory and site regulations must be followed before undertaking the following activities. Failure to follow site safety procedures exposes workers to uncontrolled hazards which can result in serious injury or in extreme cases, fatality.

Personal Protective Equipment (PPE) must be worn to control the foreseeable hazards associated with conveyor belts. Confined space, tensioning devices and heavy components create a worksite that may expose a worker to harm. Mechanical devices such as cranes or chain blocks can reduce exposure to harm.

Once hazards have been identified, the installer should undertake written Job Hazard Analysis according to site requirements. The installer must identify all hazards and apply appropriate controls before proceeding with the installation or servicing of this equipment.

There are installation, maintenance and operational activities involving both isolated and operating conveyors. Each has a safety protocol, and it is your responsibility to be familiar with the sites requirements.

Operating Conveyors

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

- Inspecting the performance and operation of the product.
- Dynamic troubleshooting.

Isolated Conveyors

The following activities are performed on isolated conveyors:

- Installation
- Parts replacement
- Repair
- Cleaning

Correct Storage

Provided goods remain stored within boxes or on pallets wrapped with plastic, TS Global products can be stored outside in all weather conditions. If packaging is damaged or removed, TS Global recommends that the products be stored under cover and out of direct sunlight to minimise deterioration of any componentry.

Section 3 – Installation Instructions

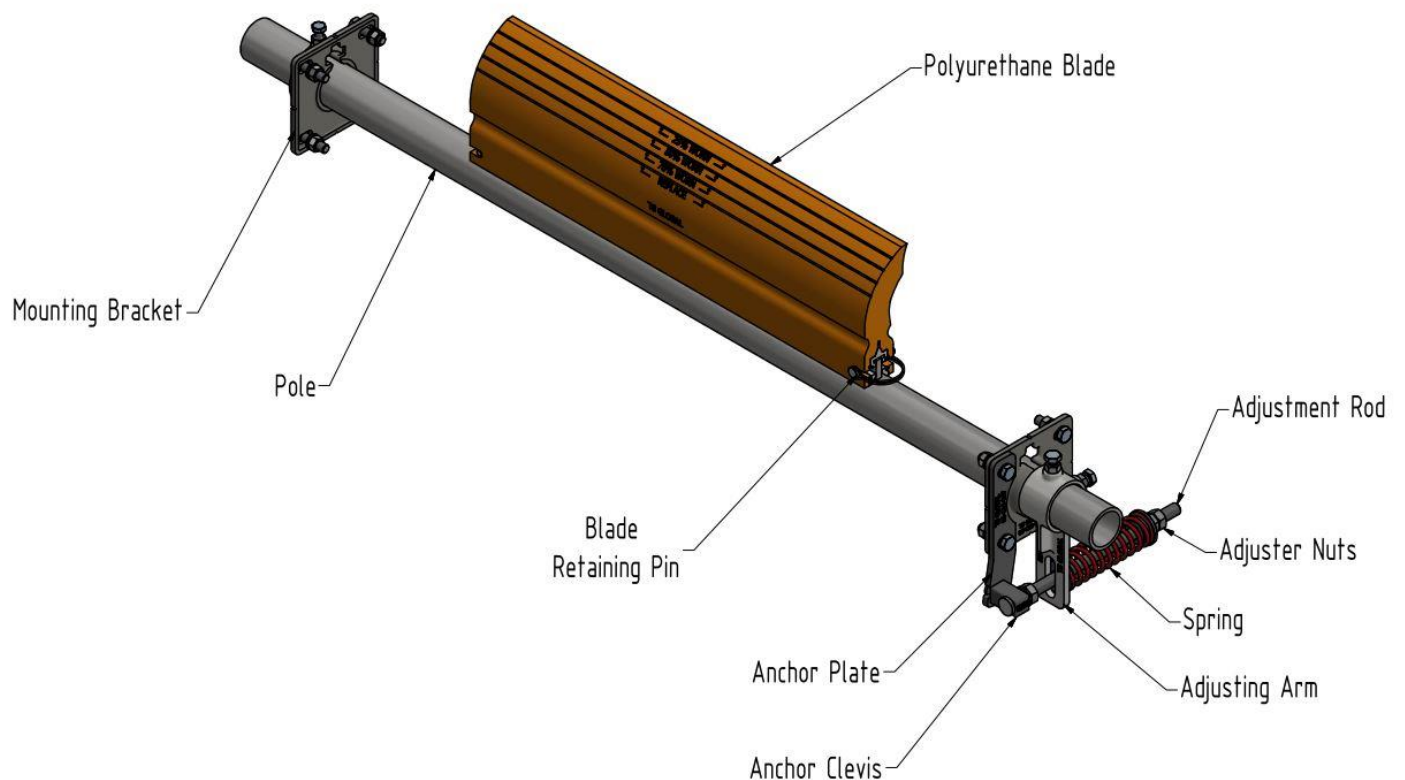
Checklist

- Check that the product size is correct for the conveyor to be installed on.
- Check the product and make sure all the parts have been supplied.
- Review the “Tools Needed” listed on page 8 of the Installation instructions.
- Check the installation location: will the cleaner fit inside chute.

Before you begin:

- Familiarise yourself with the main components of this product (Fig. 1a).
- Determine the install location and check for clearances (Fig. 1b).
- Follow all safety precautions and site hot work procedures (as required).
- Protect all fastener threads and the belt from weld spatter.

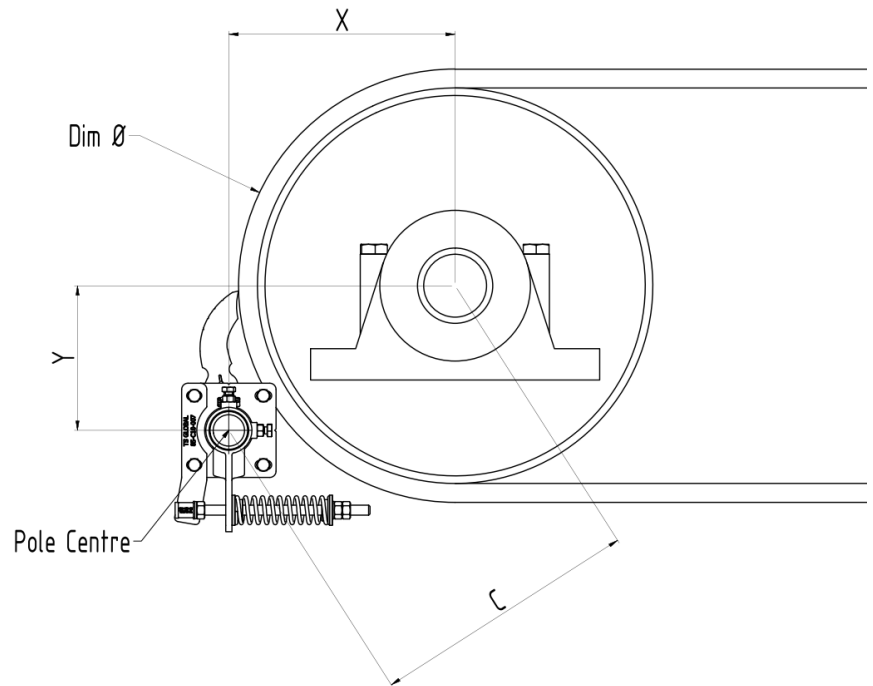
Note: TS Global belt cleaners have been designed to be flexible in installation. In the event that conveyor head chute or structure needs to be modified, seek engineering approval from your site contact, prior to undertaking modification.



To determine positioning of EP cleaner pole, X and Y coordinates will need to be identified. The following chart below can be used.

TS Global Reference chart

TS Global EP Cleaner Coordinates Chart			
Ø	Dim X	Dim Y	Dim C
250	74	230	242
275	92	230	248
300	108	230	254
325	131	230	265
350	146	230	273
375	166	230	284
400	179	230	291
425	195	230	301
450	207	230	309
475	223	230	320
500	235	230	329
525	249	230	339
550	266	230	352
575	283	230	365
600	299	230	377
625	314	230	390
650	330	230	402
675	346	230	415
700	360	230	427
725	374	230	439
750	389	230	452
775	403	230	464
800	417	230	477
825	432	230	489
850	446	230	501
875	460	230	514
900	474	230	526



Note: standard pole coordinates will set cleaner blade at recommended 0 - 15 degrees below horizontal plane of the head pulley. If standard coordinates cannot be used due to chute configuration use Dim C in above chart for best mounting position.

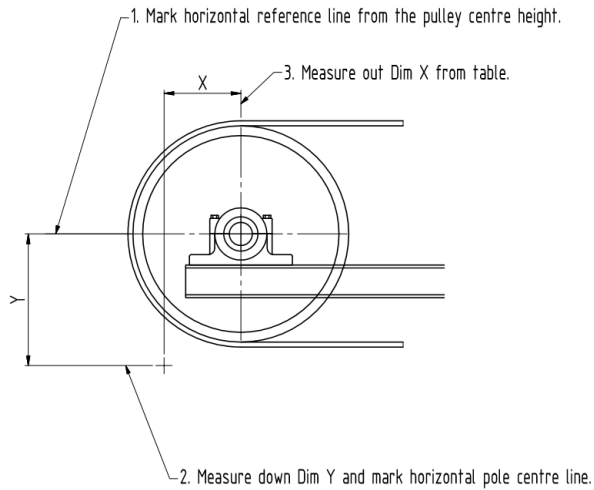
Alternatively, supply TS Global with the Pulley Diameter (including lagging) and the belt thickness and we will advise the recommended set up or alternatives.

Suggested Tools Required for Installation

- Tape measure
- Marking Pen
- Level
- 2 x 150mm G Clamps
- 2 x 19mm Spanners
- 24mm spanner
- Cutting Torch and or Welder
- Grinder
- Drill
- Various drill bits up to 13mm

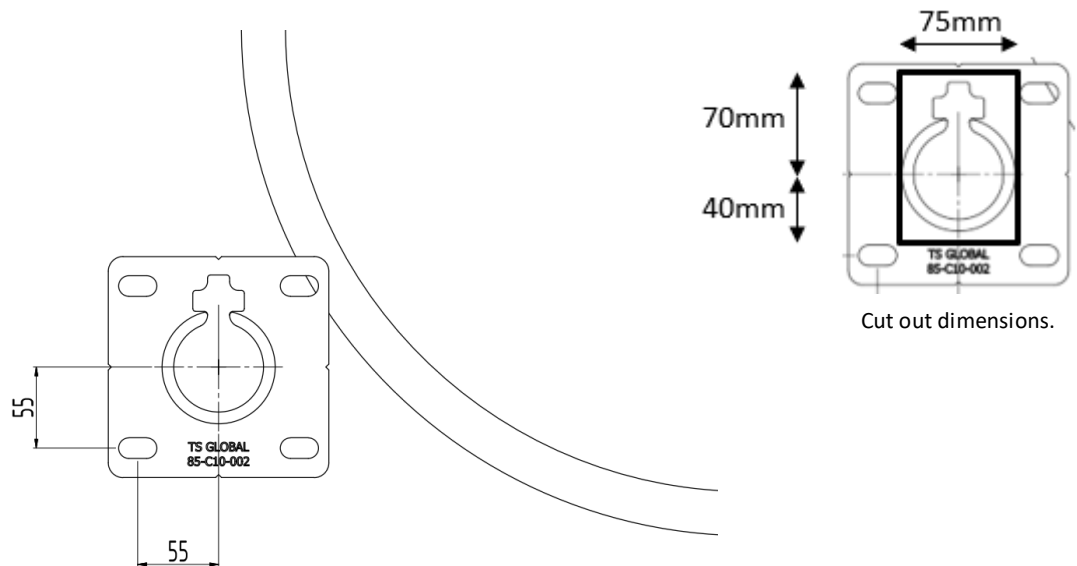
Mark Out Mounting Assemblies

1. Mark a horizontal reference line from the pulley centre.
2. Measure vertically down dimension Y and mark the horizontal pole centre line.
3. Measure out dimension X distance and mark the vertical pole centre line.
4. Where the horizontal and vertical pole centre lines intersect is the correct pole mounting centre.



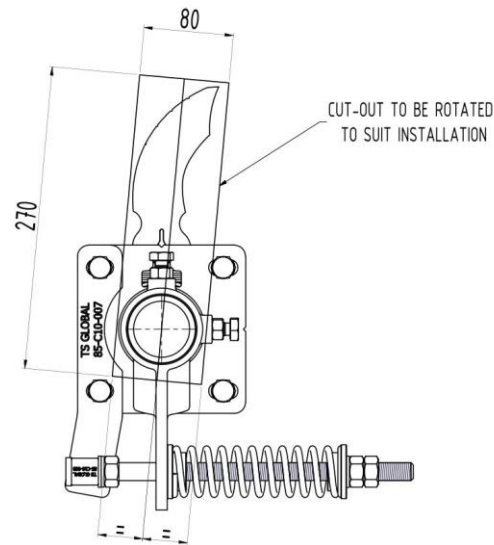
Install Mounts

1. In most applications, the standard mounting plates will have adequate room to fit on the structure with no cutting.
2. Using the mounting plate, position centre hole over the centre of the intersecting lines. Ensure slotted holes are running horizontal to allow for alignment of the blade later.



3. Mark out mounting bolt holes and cut out for pole to pass through chute

- Alternatively, if installing into a chute with limited access for maintenance, larger cut outs may be required on operators side only

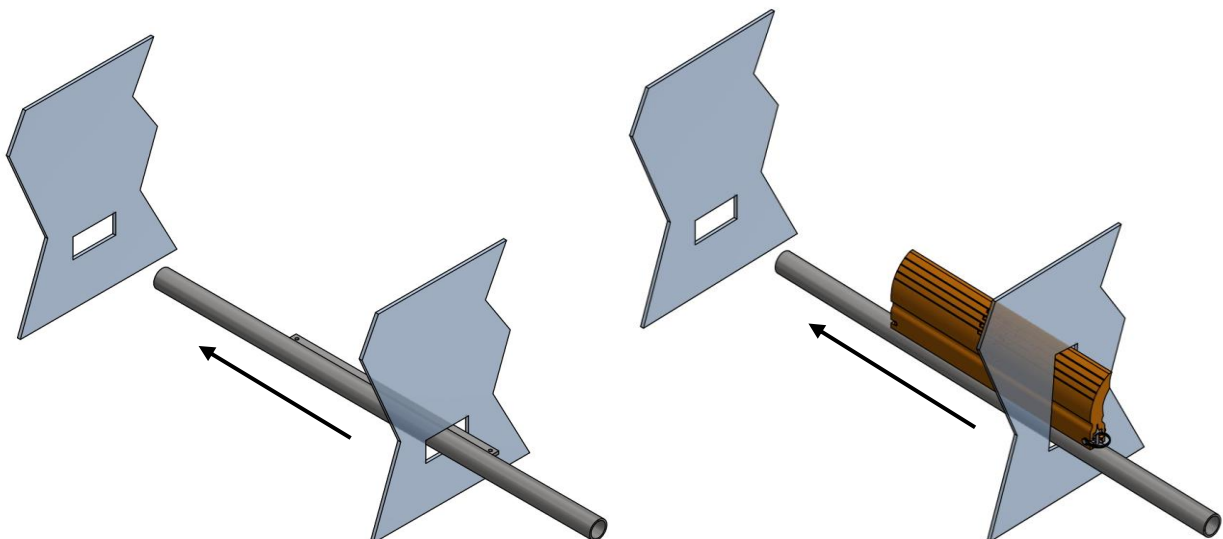


Operators side cut out.

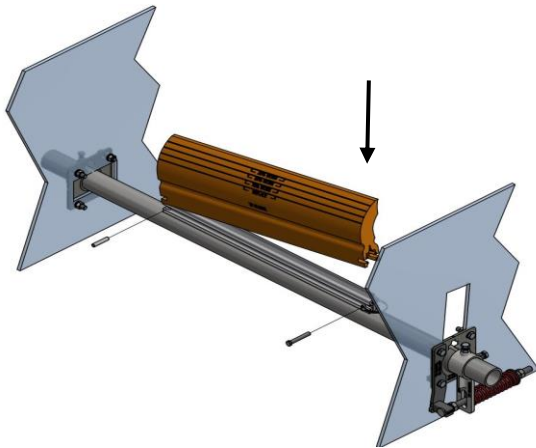
- Cut and drill required holes
- Bolt the mounting plate into position and repeat for the opposite side

Pole and Blade Installation

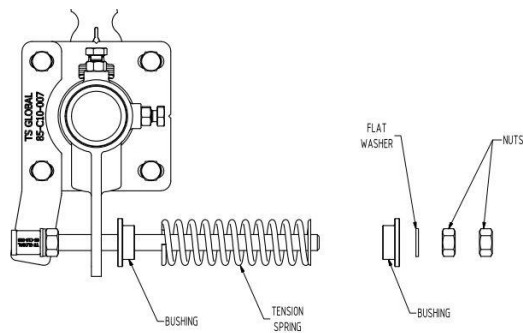
- To install the pole, slide it through the chute cut outs and into the far side mount.



2. Centralise the pole in the chute
3. For an open chute fit the blade to the pole using the retaining pin

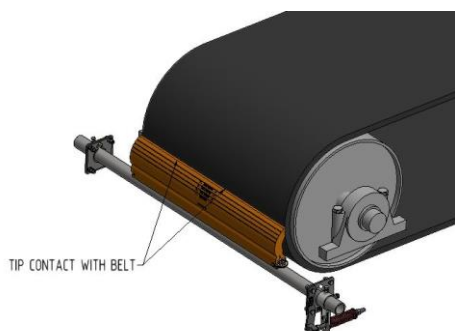


4. Fit both adjusters to cleaner pole. However, do not tighten.



Note: Adjusters are set up for both left and right-hand side and can be fitted to the mounting plate in 4 different locations around the pole.

5. Rotate the cleaner upward until the blade touches the belt (refer fig 3a).
6. Centre the tips across the belt and tighten both adjuster arms to retain the cleaner in the centre position (refer figure 3b).

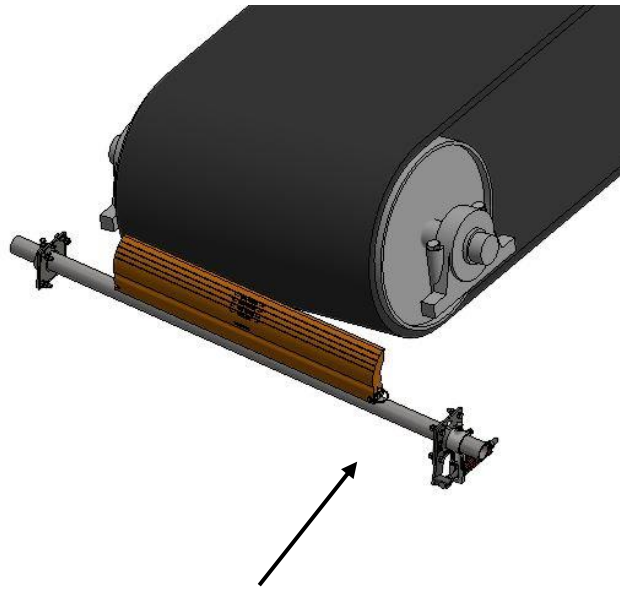


*Fig. 3a
Cleaner aligned with belt*



*Fig. 3b
Cleaner centred to the pulley*

- Adjust the mount plates by pushing under the pulley until the cleaner blade is parallel to the belt surface. This is to ensure the cleaner is aligned correctly with the belt.



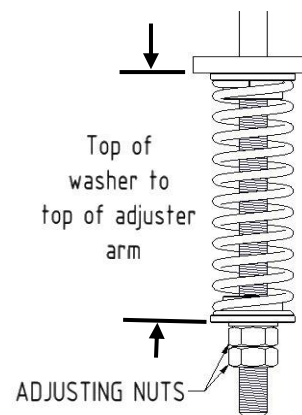
- Tighten the mount plate bolts
- Utilising adjuster, tension cleaner up until blade is in full contact with the belt

Blade Tension

- Using the following chart, compress the spring using the adjusting nuts

Blade width	mm
450	152
600	149
750	143
900	137
1050	130
1200	127
1350	121
1500	119
1600	117
1800	115

- With tension set, tighten the lock nut.
- Cleaner is now installed.



Section 4 – Pre-Operation Checklist and Testing

Pre-Operation Checklist

- Recheck that all fasteners are secured
- Check blade is in full contact on the belt
- Check coordinates of cleaner pole
- Be sure that all installation materials and tools have been removed from the belt and the conveyor area.

Test Run the Conveyor

- Remove isolation in line with site procedures
- Run the conveyor for at least 15 minutes and inspect the product performance
- Check all components for proper positioning and tensioning
- Check cleaner for excessive vibration or material passing tips
- Make adjustments as necessary. In some case this may require isolation of the conveyor.

NOTE: Observing the product when it is running and performing properly will help to detect problems. If vibration occurs or material is passing tips refer to section 6 - troubleshooting

Section 5 – Maintenance

TS Global products are designed to operate with minimum maintenance, however, to maintain superior performance some service is required. When the product is installed, a regular inspection and maintenance program should be established. This program will ensure that the product operates at optimal efficiency and problems can be identified and rectified before reduction in performance occurs.

Routine Visual Inspection (Recommended every 4 weeks)

A visual inspection of the cleaner and belt can determine:

- If cleaner blade is in full contact with belt
- If the belt looks clean and cleaner has correct tension
- If the blade is worn out and need to be replaced
- If there is damage to other cleaner components
- If material is built up on the cleaner
- If there is cover damage to the belt
- If there is vibration of the cleaner

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

Routine Physical Inspection (Recommended every 3 months)

When the conveyor is not in operation and isolated, undertake a physical inspection of the product to perform the following tasks:

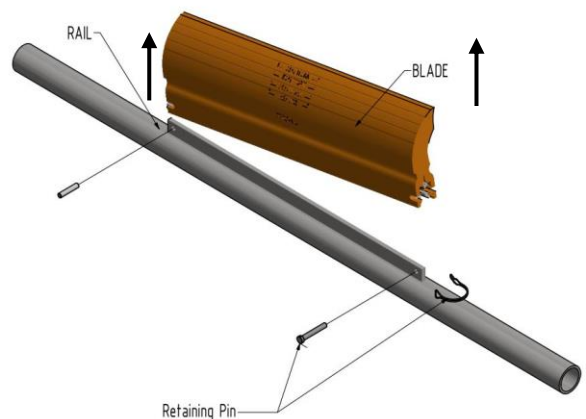
- Clean material build-up off cleaner
- Closely inspect the blade for wear and/or any damage Replace if needed
- Ensure full contact of blade across belt
- Inspect all fasteners for tightness and wear. Tighten or replace as needed
- Replace any worn or damaged components
- Ensure cleaner has correct tension
- When maintenance tasks are completed, test run the conveyor to ensure the cleaner is performing correctly.

Blade Service Instructions

1. Prior to commencing blade replacement, isolate conveyor as per site regulations.
2. Release all tension on the cleaner blade
3. Allow the cleaner blade to lay backwards
4. Remove retaining pin then blade
5. Check pole for straightness and wear
6. Check all components for wear and replace as required

When replacing blade, ensure retaining pin is securely fitted to prevent any possibility of blade coming loose.

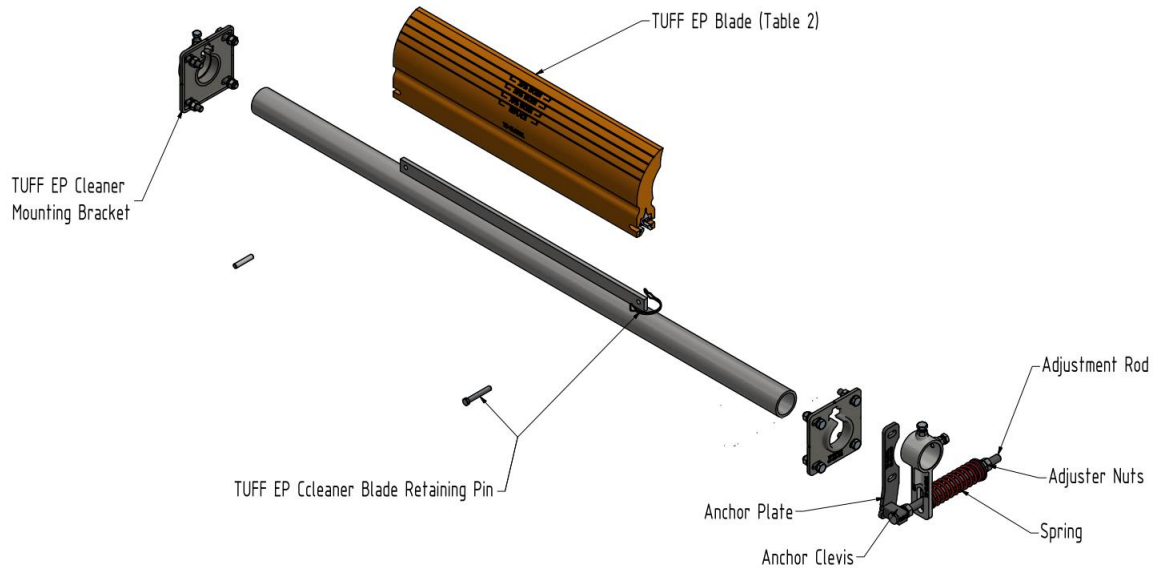
7. Replace blade
8. Adjust cleaner as detailed in Section 3 Blade Tension



Section 6 – Troubleshooting

Problem	Possible cause	Possible solution
Vibration	Mounting plate bolts loose	Ensure all bolts are tight
	Cleaner not set up correctly	Ensure cleaner set up properly (check coordinates) Cleaner may need to be adjusted under pulley on X coordinate
	Belt deformed on pulley	Clean or replace pulley lagging
	Cleaner over tensioned	Ensure cleaner is correctly tensioned (As per table on page 11)
	Cleaner under tensioned	Ensure cleaner is correctly tensioned (As per table on page 11)
Material build-up on cleaner	Cleaner not set up correctly	Ensure cleaner set up properly (check coordinates)
	Excessive sticky material	Frequently clean unit of build-up.
Damaged belt cover	Cleaner over-tensioned	Check cleaner is correctly tensioned (As per table on page 11)
	Cleaner blade damaged	Check blade for wear or damage and replace where necessary
	Attack angle is not correct.	Ensure cleaner set up properly (check coordinates)
	Material built up in chute	Frequently clean unit of build up
Cleaner not conforming to belt	Cleaner not set up properly	Ensure cleaner set up properly (check coordinates)
	Wear profile in belt cover	Allow blade to wear to belt profile
Material passing cleaner	Cleaner not set up properly	Ensure cleaner set up properly (check coordinates)
	Cleaner tension too low	Ensure cleaner is correctly tensioned (As per table on page 11)
	Cleaner blade worn or damaged	Check blade for wear or damage and replace where necessary
	Belt deformed on pulley	Replace pulley lagging
	Build up on lagging	Clean down lagging or replace lagging
	Wear profile in belt cover	Allow blade to wear to belt profile
Missing material in belt centre only	Lagging damaged	Replace pulley lagging
	Cleaner blade worn/damaged	Check blade for wear or damage and replace where necessary
Missing material on outer edges only	Crowned pulley	Allow blade to wear to belt profile
	Cleaner blade worn/damaged	Check blade for wear or damage and, replace where necessary

Section 7 – Replacement Parts



EP Cleaner Poles	
Description	Standard Pole
TUFF EP Pole 0450	85-C11-001
TUFF EP Pole 0600	85-C11-002
TUFF EP Pole 0750	85-C11-003
TUFF EP Pole 0900	85-C11-004
TUFF EP Pole 1050	85-C11-005
TUFF EP Pole 1200	85-C11-006
TUFF EP Pole 1350	85-C11-007
TUFF EP Pole 1500	85-C11-008
TUFF EP Pole 1600	85-C11-009
TUFF EP Pole 1800	85-C11-010

Table 2 – EP Blades		
Description	Standard Duty	Low Friction
TUFF EP Blade 0450	85-C12-001	85-C12-021
TUFF EP Blade 0600	85-C12-002	85-C12-022
TUFF EP Blade 0750	85-C12-003	85-C12-023
TUFF EP Blade 0900	85-C12-004	85-C12-024
TUFF EP Blade 1050	85-C12-005	85-C12-025
TUFF EP Blade 1200	85-C12-006	85-C12-026
TUFF EP Blade 1400	85-C12-007	85-C12-027
TUFF EP Blade 1500	85-C12-008	85-C12-028
TUFF EP Blade 1600	85-C12-009	85-C12-029
TUFF EP Blade 1800	85-C12-010	85-C12-030

Table 5 - End Assemblies and Retaining Pin	
Description	
TUFF EP Cleaner Mounting Bracket	85-C10-002
TUFF EP Cleaner Anchor Clevis	85-C10-003
TUFF EP Cleaner Adjuster Arm	85-C10-005
TUFF EP Cleaner Anchor Plate	85-C10-007
TUFF EP Cleaner Adjustment Rod	85-C10-008
TUFF EP Cleaner Tension Spring	85-C10-009



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