Since 2007 TS Global has specialised in the manufacture of a comprehensive range of high quality conveyor accessories and polyurethane components. Our engineering and manufacturing expertise delivers world-class conveyor solutions that are built to withstand the harshest conditions.

Our focus is on high performance, low maintenance products to ensure we deliver our clients solutions that improve plant availability, reduce downtime and minimise maintenance expenditure.

TS Global has developed a diverse and market leading range of primary and secondary belt cleaners to suit all applications and provide protection to your conveyor system.

- Proven Performance
- Quality Product
- Flexibility in Design
- On-time Delivery
WHY

In mining operations, materials handling constitutes a major component of production costs. Conveyors play a central role in the operations processing, storage and transportation of materials. It is essential that they operate efficiently with maximum availability and with a minimum of down-time.

When operating a conveyor system, product losses due to spillage and carry-back will occur, reducing equipment life expectancy and increased site hazards and operational costs. By understanding the basics of the product being conveyed, we are able to design solutions that will deliver significant improvements in conveyor performance.

WHERE

Typically, belt cleaning systems are mounted at or near the discharge (head/tripper) pulley to remove residual fines adhering to the belt. Provided sufficient room is available, the selected belt cleaning system should be installed within the confines of the transfer chute area. This ensures that all fines removed by the belt cleaning system are returned to the main material flow as saleable product and reduces carry-back under the conveyor.

HOW

Belt cleaning devices are commonly used throughout the materials handling industry. Our range of belt cleaners apply a light tension to the carry side of a conveyor belt via a screw, spring, air bag or hydraulic cylinder. This tip pressure removes residual fines adhering to the conveyor belt and returns them to the mainstream of the product flow.

To minimise carry-back under a conveyor, where room is available, our approach is to install a belt cleaning system which incorporates a primary, secondary (with water where available) and tertiary belt cleaners. These will be supported by a set of stabilising rollers that ensures that the belt cleaners operate on a flat and stable surface.

For optimum performance, where possible, water should be introduced to any belt cleaning system. Water provides many advantages including:

- Improved cleaner performance
- Acts as a lubricant and reduces wear on tips and belt cover
- Assists with minimising airborne dust

We manufacture premium quality, innovative conveyor products and market leading solutions.
Materials conveyed throughout any plant vary in consistency and density. These variables each have their own unique properties and careful consideration must be given to the selection of the belt cleaning system to be installed.

When selecting a belt cleaning system, a set of standard principles must always be considered to ensure its longevity and guaranteed performance levels including:

• Can we utilise water within the cleaning process?
• How many cleaners can be installed within the chute?
• Is the belt stable or is a pressure/stabilising roller required?
• What is the condition of the belt and pulley lagging?
• Does the belt cleaning system interact with mechanical fasteners or will the belt be permanently vulcanised?
• Is the cleaning system installed within a corrosive environment where the use of stainless steel is imperative?
• Are there any gussets or flanges impeding belt cleaner installation areas?
• Does the system need to cater for reversing situations, heavy run back or belt stretch?

WET CLEANING SYSTEMS

Industry performance testing has consistently confirmed that a wet belt cleaning system will always out perform a dry system. It is our recommendation, wherever water can be applied, it should be incorporated within a belt cleaning system.

The use of water reduces wear to the cleaner components and conveyor belt with the water acting as a lubricant and dust suppressor within the transfer chute. The below table details the spray options available and the volume of water added by a wet belt cleaning system.

Spray Options

<table>
<thead>
<tr>
<th>Spray Type (Angle)</th>
<th>Spray Size</th>
<th>l/min. at 43.5 PSI (3 bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 degree fan</td>
<td>11006</td>
<td>2.4</td>
</tr>
<tr>
<td>110 degree fan</td>
<td>11008</td>
<td>3.2</td>
</tr>
<tr>
<td>110 degree fan</td>
<td>11010</td>
<td>3.9</td>
</tr>
<tr>
<td>110 degree fan</td>
<td>11015</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Note: Figures above are per spray.
PRIMARY BELT CLEANERS

The main objective of a primary belt cleaner is to remove the majority (up to 80%) of the fines at the discharge point of the conveyor. An effective primary belt cleaner will allow secondary belt cleaners to operate at the optimum levels to ensure carry-back is minimised, reducing maintenance and improving conveyor performance.

Our primary cleaners are manufactured from 304 grade stainless steel (316 available upon request) and our range includes:

### Application
- Single or bi-directional conveyors
- Pulley diameter up to 1500mm (59\(\frac{1}{16}\)"")
- Belt speed up to 7.0m/s (7\(\frac{5}{8}\)yd/s)
- Vulcanised belts only
- Available with retractable cartridge

### Application
- Single or bi-directional conveyors
- Pulley diameter up to 1000mm (39\(\frac{3}{8}\)"")
- Belt speed up to 5.5m/s (6\(\frac{1}{8}\)yd/s)
- Vulcanised or clipped conveyor belts

### Application
- Single or bi-directional conveyors
- Pulley diameter up to 1200mm (47\(\frac{1}{4}\)"")
- Belt speed up to 5.5m/s (6 yd/s)
- Vulcanised or clipped conveyor belts

<table>
<thead>
<tr>
<th>Type</th>
<th>Blade Options</th>
<th>Suspension Arms</th>
<th>Cushions</th>
<th>Pole</th>
<th>Tensioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>H Tungsten Belt Cleaner</td>
<td>✓ ✓ x x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ x x ✓ ✓ x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H Polyurethane Belt Cleaner</td>
<td>x x ✓ ✓ ✓ ✓ x x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓</td>
<td>✓ ✓ x x ✓ ✓ x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XHD Belt Cleaner</td>
<td>x x ✓ ✓ ✓ ✓ x x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓</td>
<td>✓ ✓ x x ✓ ✓ x ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓ x ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H Tungsten Belt Cleaner
- Heavy Duty Tungsten
- Polyurethane
- Mono Arm
- Standard Duty
- Extreme Duty
- Standard Duty
- Extreme Duty
- Standard Duty
- Reinforced
- Super pole
- Screw
- Spring
- Air
- Hydraulic

H Polyurethane Belt Cleaner
- Heavy Duty Tungsten
- Polyurethane
- Mono Arm
- Standard Duty
- Heavy Duty
- Extreme Duty
- Standard Duty
- Extreme Duty
- Standard Duty
- Reinforced
- Super pole
- Screw
- Spring
- Air
- Hydraulic

XHD Belt Cleaner
- Heavy Duty Tungsten
- Polyurethane
- Mono Arm
- Standard Duty
- Heavy Duty
- Extreme Duty
- Standard Duty
- Extreme Duty
- Standard Duty
- Reinforced
- Super pole
- Screw
- Spring
- Air
- Hydraulic
SECONDARY (OR TERTIARY) BELT CLEANERS

The main objective of a secondary belt cleaner is to remove the majority of fines that pass through the primary belt cleaner and return them to the main product flow, thus minimising carry-back, reducing maintenance and improving conveyor performance. The secondary cleaners cannot operate at their optimum level without the assistance of a high performing primary belt cleaner.

Our secondary belt cleaners are manufactured from 304 grade stainless steel (316 available upon request) and our range includes:

- P cleaner
- Spraypole P cleaner
- R cleaner
- Spraypole R cleaner
- U cleaner
- P line cleaner
- R line cleaner
- Tuffline cleaner

<table>
<thead>
<tr>
<th>Type</th>
<th>Blade Options</th>
<th>Suspension Arms</th>
<th>Cushions</th>
<th>Pole</th>
<th>Tensioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Type Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ x ✔ x ✔ ✔ x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P Type Spraypole Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ x ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Type Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ x ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Type Spraypole Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U Type Cleaner</td>
<td>✔ x ✔ ✔ N/A N/A N/A ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P Line Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Line Cleaner</td>
<td>✔ ✔ x ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuffline Cleaner</td>
<td>✔ x ✔ ✔ N/A N/A N/A ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P Type Cleaner*</td>
<td>Spray Pole P Cleaner*</td>
<td>R Type Cleaner*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------</td>
<td>----------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image1" alt="P Type Cleaner* Image" /></td>
<td><img src="image2" alt="Spray Pole P Cleaner* Image" /></td>
<td><img src="image3" alt="R Type Cleaner* Image" /></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Application**
- Single directional conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (polyurethane)
- Vulcanised (tungsten) or clipped (polyurethane) conveyor belts

**Application**
- Single directional conveyors
- Belt speed up to 7.0m/s
- Vulcanised or clipped conveyor belts

**Application**
- Shuttles, trippers, single, reversing or bi-directional conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (polyurethane)
- Vulcanised (tungsten) or clipped (polyurethane) conveyor belts

<table>
<thead>
<tr>
<th>Spray Pole R Cleaner*</th>
<th>U Type Cleaner</th>
<th>P Line Cleaner</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="Spray Pole R Cleaner* Image" /></td>
<td><img src="image5" alt="U Type Cleaner Image" /></td>
<td><img src="image6" alt="P Line Cleaner Image" /></td>
</tr>
</tbody>
</table>

**Application**
- Shuttles, trippers, single, reversing or bi-directional conveyors
- Belt speed up to 7.0m/s
- Vulcanised conveyor belts only

**Application**
- Single direction conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (polyurethane)
- Vulcanised (tungsten) or clipped (polyurethane) conveyor belts

**Application**
- Single directional conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (polyurethane)
- Vulcanised (tungsten) or clipped (polyurethane) conveyor belts

<table>
<thead>
<tr>
<th>R Line Cleaner</th>
<th>Tuff Line Cleaner</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="R Line Cleaner Image" /></td>
<td><img src="image8" alt="Tuff Line Cleaner Image" /></td>
</tr>
</tbody>
</table>

**Application**
- Shuttles, trippers, single, reversing or bi-directional conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (polyurethane)
- Vulcanised (tungsten) or clipped (polyurethane) conveyor belts

**Application**
- Shuttles, trippers, single, reversing or bi-directional conveyors
- Belt speed up to 7.0m/s (tungsten) 5.5m/s (tool steel/polyurethane)
- Vulcanised (tungsten or tool steel) or clipped (tool steel or polyurethane) conveyor belts

*Available with retractable cartridge.
## MOUNTING OPTIONS

All TS Global inline cleaners are available with the following mounting options:

<table>
<thead>
<tr>
<th>Single Fixed</th>
<th>Single swivel</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Single Fixed" /></td>
<td><img src="image2" alt="Single swivel" /></td>
</tr>
</tbody>
</table>

**Application**
- Compact
- Low cost
- Simple to install
- Range of tensioners available

<table>
<thead>
<tr>
<th>Dual Fixed</th>
<th>Dual swivel</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Dual Fixed" /></td>
<td><img src="image4" alt="Dual swivel" /></td>
</tr>
</tbody>
</table>

**Application**
- Minimises space requirement when two cleaners are used
- Simple to install
- Minimises installation time
- Range of tensioners available

## TENSIONING OPTIONS

All TS Global inline cleaners are available with the below tensioning options:

<table>
<thead>
<tr>
<th>Screw</th>
<th>Spring</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Screw" /></td>
<td><img src="image6" alt="Spring" /></td>
<td><img src="image7" alt="Air" /></td>
</tr>
</tbody>
</table>

**Application**
- Minimises space requirement when two cleaners are used
- Minimises installation time
- Allows cleaner adjustment to exact angle
- Optimises performance
- Range of tensioners available
POLYURETHANE OPTIONS

All TS Global polyurethane cleaners are available in the following grades:

<table>
<thead>
<tr>
<th>Polyurethane Grades</th>
<th>Colour</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Orange</td>
<td>Wet, non-abrasive applications such as coal</td>
</tr>
<tr>
<td>Fire Resistant Anti-Static</td>
<td>Black</td>
<td>Underground mines and tunnels</td>
</tr>
<tr>
<td>Ceramic</td>
<td>Blue</td>
<td>Abrasive applications such as quarry and hard rock</td>
</tr>
<tr>
<td>Ceramic Fire Resistant Anti-Static</td>
<td>Black</td>
<td>Abrasive applications in underground mines and tunnels</td>
</tr>
<tr>
<td>Low Friction</td>
<td>Green</td>
<td>Dry, abrasive, high speed applications such as iron ore</td>
</tr>
</tbody>
</table>

Associated Products

TS Global has developed a range of conveyor accessories designed to contribute to optimising the performance of any belt cleaning system, including:

- Stabilising rollers
- Water control manifolds
- Spray bars
- Air control boxes
- Hydraulic tensioners

BELT STABILISATION

Harmonic frequency within a conveyor belt, can create an unstable surface for the belt cleaners to operate. To ensure that all belt cleaners perform at their optimum level they must maintain a constant tip pressure on a flat and stable belt surface. This can be achieved by the installation of either a pressure roller (where a snub pulley exists) or a set of stabilising rollers. Our belt stabilisation systems are flexible in design to allow standard site rollers to be utilised.
WATER CONTROL MANIFOLDS

The water control manifold has been developed to control the supply, pressure and cleanliness of water to the belt cleaning system. These three deliverables are critical to ensure that the cleaning system operates at its optimum performance levels and the life of all interacting components such as conveyor belt, lagging and return rollers are maximised. The water supply is controlled via a solenoid that is connected to the conveyors operating system (PLC) and programmed to ensure that water is only supplied when the conveyor is in operation.

Our water control manifolds are available in:

- Standard inline configuration (no bypass line) — also available in an enclosed cabinet
- Standard with bypass (maintenance line) — also available in an enclosed cabinet
- Can be customised to suit specific requirements

<table>
<thead>
<tr>
<th>Water Control Unit with Bypass</th>
<th>Water Control Unit</th>
<th>Enclosed Water Control Unit with Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Water Control Unit with Bypass" /></td>
<td><img src="image2.png" alt="Water Control Unit" /></td>
<td><img src="image3.png" alt="Enclosed Water Control Unit with Bypass" /></td>
</tr>
</tbody>
</table>

SPRAY BARS

The spray bar allows water to be retro fitted to an existing dry belt cleaning system without the expense of a new cleaner. The spray bar is usually installed after the primary and prior to the secondary belt cleaner to prevent sprays from blocking. An advantage of using a spray bar is that they are light and can be easily removed to clean the spray nozzles when required.

Our spray bars are manufactured to suit any belt width and can be supplied with either U bolts or clamp blocks for mounting.

<table>
<thead>
<tr>
<th>Spray Bar with U Bolt Mounts</th>
<th>Spray Bar with Clamp Block Mounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Spray Bar with U Bolt Mounts" /></td>
<td><img src="image5.png" alt="Spray Bar with Clamp Block Mounts" /></td>
</tr>
</tbody>
</table>
AIR CONTROL BOXES

Our air control boxes are designed to be robust, with longevity in mind. The purpose of the air control box, is to ensure that a fixed pressure is applied to the belt cleaning system at all times.

Features of the air control unit include:

- Water filtration
- Pressure control

These are available with single, double or triple outlets to control single or multiple cleaners from one box.

HYDRAULIC TENSIONER

Our patented hydraulic tensioner has been designed to be retro fitted on existing or new belt cleaning systems. The unit is self-powered via a nitrogen accumulator and requires no site supplied power source. The nitrogen accumulator ensures that a constant pressure is applied to the belt cleaner throughout its life-cycle i.e. automatically adjusts to compensate for wear to the tips or conveyor belt. The purpose designed manifold incorporates an oil reservoir with sufficient capacity to drain all components. The oil is pressurised via an in-built hand pump for ease of adjustment.