

# BELT CLEANING SYSTEMS

## Cleaner supply, installation and maintenance

Primary, secondary and tertiary cleaning. Return ploughs, replacement parts and conveyor technicians who understand the installation.

PRIMARY HEAD CLEANER

SINGLE DIRECTION SECONDARY

REVERSIBLE SECONDARY CLEANER

CURVED "U"-SHAPED SECONDARY

SUPER XHD / XHD / INLINE



Yellow Super XHD primary cleaner installed in the head chute.

## Keep recovered product in the process.

Ideally a cleaner should remove material into the head chute without damaging the belt. Correct selection, mounting coordinates, tip or blade contact and routine servicing all matter.

**Mackay workshop and site support across the Bowen Basin.**



## SELECTION

# Cleaner range

Identify the construction as well as the cleaning position.

## Primary and secondary cleaner configurations

| FAMILY                              | CLEANING POSITION / CONSTRUCTION                                                                                                              |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Primary Head Cleaner                | Primary cleaning on the head pulley. Individual tungsten tips on suspension arms and cushions; a separate polyurethane suspension-arm option. |
| Single Direction Secondary          | Secondary cleaning directly beneath the head pulley. Trailing tungsten tips on individual cushions.                                           |
| Reversible Secondary Cleaner        | Secondary or tertiary cleaning with a reversing tip-and-cushion arrangement. Confirm the complete assembly for both directions.               |
| Curved "U"-Shaped Secondary Cleaner | A curved cleaning element for secondary or tertiary cleaning. Tungsten-tipped and polyurethane wearing-element options.                       |

## XHD and inline constructions

| FAMILY          | WHAT MAKES IT DIFFERENT                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Super XHD / XHD | Moulded polyurethane primary cleaners fitted to a slide frame for easy maintenance and belt-friendly cleaning.                                                                                |
| Inline          | Tool-steel blades or tungsten tips on a slide frame for easy maintenance. Tool-steel blades wear quickly to match the belt profile; tungsten tips provide a more substantial cleaning action. |

### Other cleaning requirements

V-ploughs, diagonal ploughs and wet-cleaning arrangements are covered separately. Select from the material path and return-belt installation.



## CLEANING PERFORMANCE

# Carryback-removal percentages

Indicative removal by cleaning stage, not total product throughput.

## What is being measured?

Carryback is the material still adhering to the belt after normal discharge. The percentages below apply to that residue, not the full tonnage carried by the conveyor.

| CLEANING ARRANGEMENT                      | REMOVAL GUIDE        | WHAT THE FIGURE COVERS                                                                                 |
|-------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------|
| Polyurethane primary                      | 50–70% typical       | Initial carryback remaining after discharge. A general polyurethane benchmark, not a Super XHD rating. |
| Primary + secondary                       | Can exceed 90%       | Total removal across both cleaning stages; not another 90% added to the primary result.                |
| Primary + additional secondary / tertiary | Up to 90–95%         | Cumulative removal for a staged system, not a separate tertiary-only efficiency.                       |
| Individual tungsten-tip cleaners          | No universal %       | Assess the complete cleaner arrangement. These stage benchmarks are not individual cleaner ratings.    |
| Spray / wash systems                      | Application-specific | No universal removal percentage applies to every installation. Assess the selected cleaning system.    |
| Return ploughs                            | Not comparable       | Ploughs remove loose material from the inner belt face, rather than clean the same carryback layer.    |

## Stage percentages are not added together

Illustration only: a primary removes 70% of 100 kg of carryback, leaving 30 kg. If the next cleaner removes 80% of that remainder, total removal is 94 kg (94%), not 150%.

## Check the result on your conveyor

Use a consistent baseline and compare residue under equivalent operating conditions. These are indicative benchmarks, not guaranteed Superior performance ratings.



POLYURETHANE PRIMARY CLEANERS

# Super XHD & XHD primaries

Moulded polyurethane primary cleaners on a slide frame for belt-friendly cleaning.



Super XHD polyurethane blade working against the pulley-supported belt.

## Application

Use these primary cleaners to remove the bulk of adhering coal, ore or quarry material before it reaches the secondary cleaner. The blade profile and mounting position determine how it meets the belt.

## Construction

The slide frame carries the moulded polyurethane blades and gives access for replacement during maintenance. This construction is separate from the individual suspension arms used in the Primary Head Cleaner.

## Set-up matters

Match blade width to the material path. Check the arc against the finished pulley diameter and leave the blade clear of the main discharge trajectory. Use the selected spring or air settings, not extra pressure to overcome poor positioning.

## Blade profile and compound

Select the compound, section and mounting arrangement for the conveyor. Blade colour alone does not establish temperature limits, splice compatibility or FRAS approval.



TUNGSTEN-TIP / SUSPENSION-ARM CONFIGURATION

# Primary Head Cleaner

Individual tips, suspension arms and cushions across the cleaning width.



Primary Head Cleaner installed across the belt in the head chute.

## Where it is used

The Primary Head Cleaner removes adhering material while the belt is supported by the head pulley. It suits installations requiring individually supported tungsten tips and replaceable suspension-arm components.

## How the assembly works

Each tip is secured to a suspension arm. The cushion allows local movement as the belt passes. Arm size, tip angle, pole position and tension must be matched rather than adjusted independently by eye.

## Belt protection

Check tip retention and alignment at every service. A loose or dislodged segment can expose an edge to the belt; a sound tip cannot compensate for a failed cushion or damaged arm.

## Confirm the installation

Confirm the suspension-arm size, tip specification and splice compatibility before selecting the complete assembly. See the installation section for mounting coordinates.



PRIMARY HEAD CLEANER COMPONENTS

# Suspension arms & poles

Arm reach and pole selection follow the actual installation, not the belt width alone.



Tungsten tip secured to its suspension arm.

## Arm, cushion and tip

The arm must place the tip at the specified contact angle without running out of adjustment. Inspect for distortion, corrosion, cracked attachments and unwanted movement before fitting new tips.

## Arm size and adjustment

SS, S, M, L and LL identify arm sizes. Confirm the required size and variant, and check the matching cushion before substituting an arm.

## Check the pole dimensions

Confirm cleaning coverage, mounting span and end fit before substituting a pole. Check pole diameter, overall length, cleaning width, end assemblies and the condition of both supports.

## Verify the set-out

Use the correct set-out drawing after a change in pole or arm configuration.



POLYURETHANE SUSPENSION-ARM CONFIGURATION

# Primary Head Cleaner — polyurethane

Moulded suspension-arm sections, separate from the Super XHD / XHD slide-frame systems.



Polyurethane suspension-arm assemblies prepared alongside tungsten-tip cleaners.

## Construction

Moulded polyurethane suspension-arm sections provide a resilient cleaning edge on the primary pole arrangement. They are not the large contoured replacement blades used on an XHD primary slide frame.

## Application

Consider this configuration where a polyurethane contact surface is preferred. The arm size and spring-tensioning arrangement still need to match the pulley, belt and mounting position.

## Inspection points

Check the moulded arm section for cracking, distortion and uneven wear. Check the pivot mounts and spring movement before resetting the cleaner. Mechanical fasteners and reverse travel require a suitable assembly.

## Specify the actual configuration

A suspension-arm polyurethane primary and an XHD polyurethane primary have different wear parts and installation requirements. Identify the assembly, not just its colour or appearance.



TRADITIONAL TRAILING-TIP CONFIGURATION

# Single Direction Secondary

Residual cleaning directly beneath the head pulley.



Single Direction Secondary beneath the head pulley, with the tip row, cushions and support pole visible.

## Application

The primary removes bulk carryback; the Single Direction Secondary removes the remaining fines. Position the tips directly below the head pulley, inside the head chute, so removed material drops back into the product stream.

## Tip and cushion response

The trailing tip arrangement follows normal belt travel. Each cushion must move freely and support its tip at the correct angle. Uneven tip heights, hardened cushions or a skewed pole prevent consistent cleaning.

### Belt direction

Select the complete cleaner for the splice and direction of travel. A trailing single-direction arrangement should not be assumed suitable for reverse operation.

### Spray-assisted cleaning

Confirm nozzle arrangements, water supply, filtration and drainage for a spray-pole installation.



TRADITIONAL REVERSING-TIP CONFIGURATION

# Reversible Secondary Cleaner

A reversing tip-and-cushion arrangement for secondary or tertiary cleaning.



Reversible secondary cleaner installed beneath the belt, with the tip row and pole visible.

## Application

Use a correctly specified reversible secondary arrangement where the belt reverses, experiences runback or needs a further cleaning stage behind the secondary. Locate it under the pulley within the head chute where the conveyor layout permits.

## Why it is not an inline cleaner

The reversible secondary cleaner uses its own replaceable tip and cushion on a pole. Inline cleaners use a separate slide frame with their own segments, mounts and tension settings.

## Reversing is part of the specification

Tip geometry, cushion response and pole adjustment must suit the actual movement. State whether the belt carries material both ways or only reverses briefly; the operating conditions are not equivalent.

## Support and clearance

Check the full movement range, splice passage and clearance to the head pulley, other cleaners and chute steelwork. Inspect tip retention before recommissioning.



CURVED SECONDARY / TERTIARY CONFIGURATION

# Curved “U”-Shaped Secondary Cleaner

A curved cleaning element for residual material and water control.



Curved secondary cleaner with an orange polyurethane blade installed against the belt.

## Construction and application

The curved cleaning element differs from a straight row of single-direction or reversible secondary tips. Tungsten-tipped and polyurethane options address residual fines or wet material after the earlier cleaning stage.

## Direction and clearance

Treat the standard curved arrangement as single-direction unless the selected cleaner is specifically approved otherwise. Confirm the curve, working width, end supports and removal path before ordering.

### Match the cleaning element

Specify tungsten-tipped or polyurethane replacement parts to suit the existing cleaner. Match the element, pole and end assemblies; use the specifically identified FRAS component where required.



SLIDE-FRAME CONSTRUCTION

# Inline secondary cleaners

Tool-steel blades or tungsten tips on a slide frame for straightforward maintenance.



Inline secondary cleaner showing the wear segment secured to the slide frame.

## Application

Inline cleaners remove residual material beneath the head pulley or at a suitable tertiary position behind the secondary. Their compact arrangement is useful where suspension-arm space is limited.

## Slide-frame maintenance

The wear segments are carried on a slide frame for easy access during maintenance. Allow clear withdrawal space at the service side. Isolate the conveyor and release stored tension before removing the assembly.

## Tool steel or tungsten tips

Tool-steel blades wear quickly to match the belt profile for effective contact. Tungsten tips provide a more substantial cleaning action. Select the contact material to suit the belt, splice and residue.

### Check the slide frame before resetting

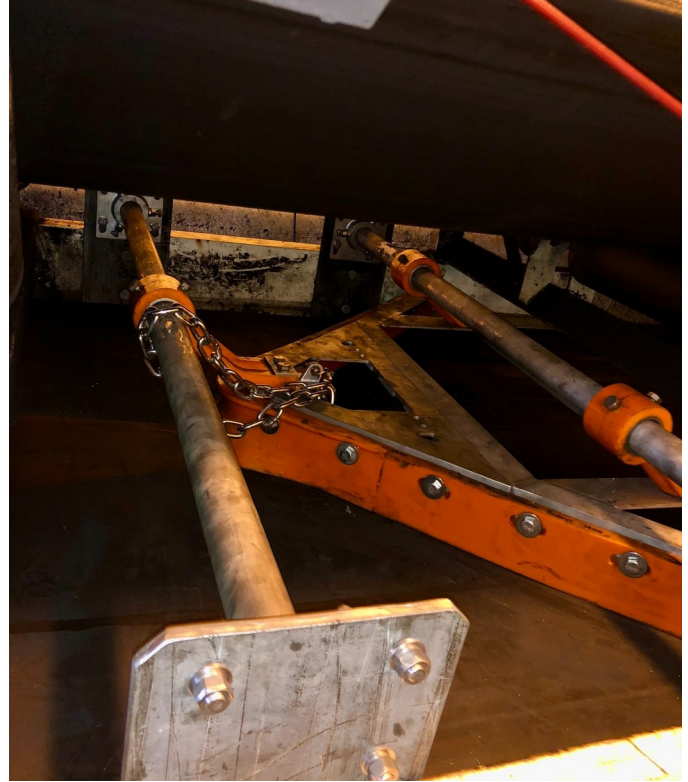
Match the wear segments, segment locks and tensioning to the existing frame. Check the track, retention and clear service-side removal path after isolation and release of stored tension.



INNER RETURN-BELT PROTECTION

# V-plough return cleaners

Remove loose material before it enters a tail, bend or take-up pulley.



V-plough installations showing blades, support poles and restraint components.

## Floating and torsion arrangements

A floating V-plough follows the inner return-belt face through its support linkage and weight. A torsion arrangement uses preloaded suspension components. Both need sound mounts, restraints and free movement.

## Discharge and belt protection

The V directs material off both edges. Keep those paths clear, check the nose and side blades, and position the plough upstream of the pulley entry. It protects the inner belt face; it does not replace carry-side cleaning.

### Check the plough construction

Blade sets are specific to floating or torsion construction. Confirm the profile, fixing arrangement and cleaning width before replacement.



CONTROLLED ONE-SIDE DISCHARGE

# Diagonal return ploughs

Return protection where material needs to leave one side of the belt.

PLAN VIEW — INNER BELT FACE



## Where a diagonal is useful

A diagonal blade pushes stray material to a nominated side before the belt reaches a pulley. Use it where the layout favours one-sided discharge or a V-plough cannot discharge clear of the structure.

## Specify for the actual travel

Single-direction and reversing arrangements are different selections. Check the blade mounting and pivot response for the intended movement. Do not assume a diagonal cleaner will operate safely both ways.

## Inspect the whole plough

Check the blade, nose or leading edge, linkage, restraints and clearance through the full movement range. A damaged restraint or seized suspension needs attention before it allows the plough to contact the pulley.

| SELECTION          | V-PLOUGH                                  | DIAGONAL                                      |
|--------------------|-------------------------------------------|-----------------------------------------------|
| Material path      | Both belt edges                           | One nominated side                            |
| Preferred position | Inner return face, before pulley entry    | Inner return face, before pulley entry        |
| Installation check | Clearance and material drop on both sides | Clearance on the selected discharge side      |
| Replacement        | Identify floating or torsion construction | Identify pivot, suspension and blade mounting |

## Keep product off walkways and structure

Select a discharge side with a clear collection path. Moving material from the belt into a guard, accessway or structural pocket creates another maintenance problem.



## RESIDUAL FINES AND MOISTURE

# Spray & belt wash systems

Water-assisted cleaning needs controlled supply, effective scraping and drainage.

## Spray before the residual-cleaning stage

A controlled spray can loosen adhering fines ahead of a secondary or tertiary cleaner. Position the spray and cleaner so slurry falls into the head chute or an intentionally designed collection system. Adding water without adequate removal and drainage can carry slurry farther along the belt.



## Spray poles and retractable bars

An integrated spray pole keeps nozzles close to the cleaning position. A retractable bar can improve nozzle access, but it needs clear withdrawal space and a practical isolation point.

## Enclosed wash systems

A wash system combines spray, cleaner contact, belt support and slurry collection. Select it for a defined residual-cleaning requirement after effective bulk removal.

| CHECK                        | WHY IT MATTERS                                                                   |
|------------------------------|----------------------------------------------------------------------------------|
| Water quality and filtration | Blocked nozzles leave untreated sections of the belt.                            |
| Pressure, flow and coverage  | The spray pattern must suit the material path and the selected nozzles.          |
| Cleaner and belt support     | Water does not correct poor tip contact, worn cushions or an unstable belt span. |
| Drainage and access          | Allow for slurry, blockages, internal clean-out and maintenance isolation.       |

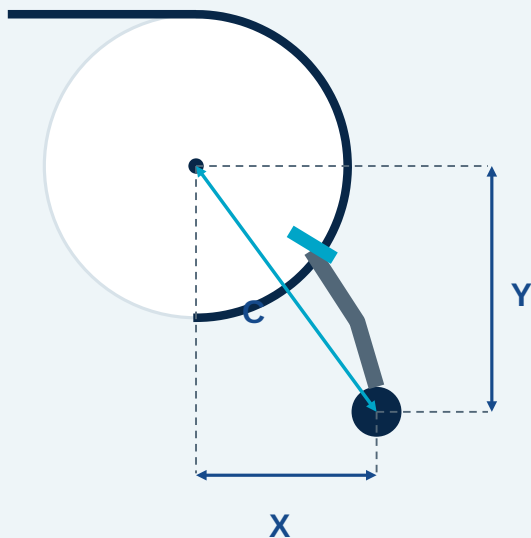


INSTALLATION CONTROL

# Primary Head Cleaner coordinates

Verify X, Y and C before setting tip angle and tension.

## PULLEY / CLEANER SET-OUT



Concept only. Use the selected drawing for dimension definitions and values.

### Use the correct datum

Establish the head-pulley centreline and measure the finished diameter over the belt and lagging. Confirm the selected suspension-arm size before marking the mounts.

### Check both sides

Take X, Y and C from the installation drawing for the exact assembly. Record the measurements on both chute walls and verify pole alignment before fixing the mounting brackets.

### Set tips after the pole position

Align and secure the tips, check arm and cushion movement, then set the specified tension. Changing arm size, tip profile or pole position requires another geometry check.

## What a qualified technician verifies

| CHECK                           | BELT-PROTECTION REASON                                                                       |
|---------------------------------|----------------------------------------------------------------------------------------------|
| Correct X / Y / C set-out       | Places the working parts where the chosen geometry allows them to engage and wear correctly. |
| Tip angle and alignment         | Avoids an uneven or exposed edge meeting the belt.                                           |
| Retention and cushion condition | Prevents loose segments or failed support from disrupting the cleaning line.                 |
| Clearance through adjustment    | Keeps arms, tips and pole clear of the pulley, chute and adjacent cleaners.                  |

This catalogue is not a dimensional installation manual. Do not scale the schematic or copy settings from another Primary Head Cleaner configuration.



INSTALLATION AND SERVICE ACCESS

# Mounting, tensioning & access

Settings must suit the selected assembly and remain serviceable as it wears.

## Qualified installation and servicing

Use qualified conveyor technicians familiar with the cleaner being fitted. Poor geometry, unsecured tips, seized cushions or excessive contact pressure can damage the belt cover or splice.

## Set tension to a defined value

Identify the spring, air system or mechanical adjuster. Use its specified preload, compressed spring length or pressure. Record the setting; a number of turns copied from another cleaner is not a reliable reference.

## Support and removal space

Check the mounting steelwork, pole or mainframe span and the service side. The cleaner needs clearance through adjustment and a safe removal path after isolation.

## Pressure rollers

A suitable support arrangement can steady the belt at a residual-cleaning position. Confirm roller alignment and match the mounts to the roller shaft-end fit.

### Release stored energy

Air systems require isolation and controlled release of stored pressure before work. The cleaner also needs a safe removal path after isolation.



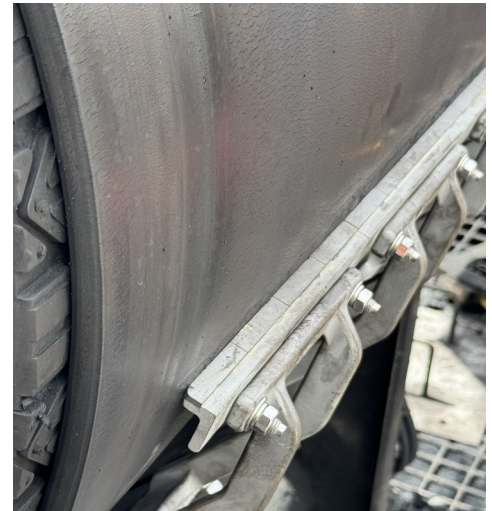
SUPERIOR CONVEYOR TECHNICIANS

# Quality installation

Correct set-out, secure components and even contact protect the belt.



Primary Head Cleaner installation in the head chute; removed material falls back into the process.



Well-aligned Primary Head Cleaner installation with even tungsten-tip contact against the belt.

## Check the conveyor first

Inspect the belt cover and splice, pulley condition, material path and existing cleaner position. Record damage before changing the cleaner.

## Set out and retain

Verify the mounting coordinates, arm selection, pole alignment and fasteners. Secure every tip or polyurethane blade before applying tension.

## Keep the product in the chute

Position the primary, secondary and tertiary so recovered material is captured. Resolve access without shifting cleaning into an unmanaged underpan.

## Commission and hand over

Observe from protected, authorised positions. Record settings, photos, outstanding defects and the next inspection requirements.

### Work on an isolated conveyor

Apply site isolation and stored-energy controls for installation, adjustment and maintenance. A removable cartridge or external tensioner is not permission to reach into moving equipment.



FAULT IDENTIFICATION

# Tip failure & belt damage

Identify the failed component and inspect the belt before restarting.



Dislodged Primary Head Cleaner tip segment disrupting the intended cleaning line.



Longitudinal belt-cover damage at an old primary cleaner.

## Dislodged primary tip segment

The segment has moved out of its intended position. The tip, attachment and suspension arm need to be inspected together. Check adjacent segments, cushion movement and damage along the belt path.

## Corrective work

Isolate the conveyor and make the failed cleaner safe. Replace damaged components, restore retention and alignment, then verify the complete set-out and tension before recommissioning.

## Damaged belt cover

Longitudinal cover damage is visible at the old cleaner. Assess the depth and extent of damage, the splice and the condition of every tip or blade. Do not treat a grooved cover as a simple tensioning problem.

## Check the cause on site

Record tip edges, wear heights, retention, cushion condition, contact angle and pole position. Establish the cause from the full inspection rather than tightening the cleaner against an already damaged belt.

### Do not tension around a failure

A dislodged tip, damaged arm or failed cushion must be rectified. Increasing pressure can turn a local component problem into further belt damage.



INSPECTION AND MAINTENANCE

# Cushions & material build-up

Wear-part replacement alone will not restore a failed support system.



Cracked cleaner cushion requiring replacement and an attachment check.



Accumulated material around the cleaning area restricts inspection and access.

## Cracked or separated cushion

Inspect the body, bonded interfaces and attachments. Check the adjacent cushions rather than assuming damage is confined to one position. A new tungsten tip will still be poorly supported by a failed cushion.

## Reset after replacement

Fit the correct cushion and attachment parts, restore tip alignment and verify tension. Check the working movement and follow up after the cleaner has bedded in.

## Material trapped around the cleaner

Build-up can hide fasteners, restrict movement and prevent removed product leaving the cleaning zone. Inspect chute clearance, drainage, access and the performance of the earlier cleaning stages.

## Restore access and containment

Clear accumulated product under site controls, identify where it is coming from and correct the discharge path. Keep inspection points and the component-removal route accessible.

### Record condition, not just replacement dates

A useful service record includes the cleaner configuration, work completed, tip or blade wear, support condition, settings, belt damage and the next corrective action.



## ENQUIRIES, UPGRADES AND PLANNED MAINTENANCE

# Cleaner supply & site support

Arrange a site assessment for a complete cleaner, replacement parts or planned maintenance.

## New cleaners and replacements

Superior Conveyors supplies complete cleaners and replacement parts, prepares assemblies in the workshop and supports installation and maintenance on site.

## Describe the problem on site

Tell us whether the issue is carryback, belt damage, premature wear, access, water or repeated component failure. A replacement part is only useful when the cleaner configuration and installation are right.



Cleaner components being serviced on site before refitting.

## Information for a cleaner enquiry

| DETAIL                       | INCLUDE                                                                                        |
|------------------------------|------------------------------------------------------------------------------------------------|
| <b>Conveyor and belt</b>     | Site, conveyor ID, belt width, speed, cover condition and splice construction.                 |
| <b>Material and pulley</b>   | Product, moisture, abrasiveness, temperature and finished pulley diameter.                     |
| <b>Existing installation</b> | Cleaner configuration, pole or frame span, mounting coordinates and service side.              |
| <b>Travel and recovery</b>   | Normal direction, runback or two-way travel; chute position, product drop path and drainage.   |
| <b>Photographs</b>           | Full installation, arms and cushions, tip or blade condition, external mounts and belt damage. |

Complete cleaners and replacement components are specified to suit the conveyor. Include the conveyor details and existing assembly dimensions with your enquiry.