

# Metso

Chute lining solutions

**Maximum  
wear life  
Minimum  
downtime**





# We'll help you choose the right solution

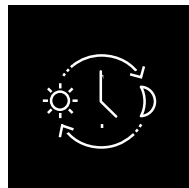
Conventionally lined transfer chutes often suffer from problems of rapid liner wear and failure, resulting in unplanned shutdowns for maintenance to complete emergency liner repairs and replacement.

Conventional transfer chutes also present a high potential risk of damaging the conveyor belts due to steep impact angles and a lack of "soft loading" on to the belts, thereby introducing yet another downtime "trap".

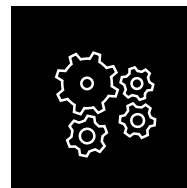
## More uptime is equal to increased production and higher revenue

Choosing a chute lining solution from Metso will help keeping downtime to a minimum. Whether it's a custom-designed chute that perfectly matches your needs or an upgrade to an existing chute by retrofitting it with a wear lining, we have the right solution for you.

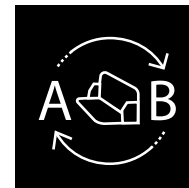
Metso offers a wide range of protective lining solutions in different materials that will suit your need – no matter what kind of material you are processing. Metso chute lining solutions are designed to minimize downtime while increasing availability and thereby maximize throughput and productivity.



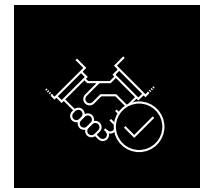
Dependability



Plug-and-play



Rotability



Rapid delivery



Keeping downtime to a minimum is critical to any production facility, but even more so in the mining business where downtime for maintenance costs enormous amounts of money.

# Contents

We'll help you choose the right solution	2
Metso design and engineering	4

## Wear lining solutions

Wearback™ tailor made chutes	6
Xledge™ chute lining solutions	8
Gridlock™ wear lining	10
Rock Box wear lining	10
Xlok™ modular liner system	10
Xalloy wear linings	10

Case: Karara Mining Australia	12
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## Trellex™ chute lining solutions

Trellex Poly-Cer	16
Trellex wear elements	16
Trellex SQ 300	16
Trellex wear sheeting	16
Trellex LF	16

Case: Lignite mining, Europe	12
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# Metso design and engineering

Our own in-house design and engineering team comprises highly experienced professionals that develop tailored solutions from the initial concept stage to full detailed drawings for projects and manufacturing.

## Application audit and product recommendation

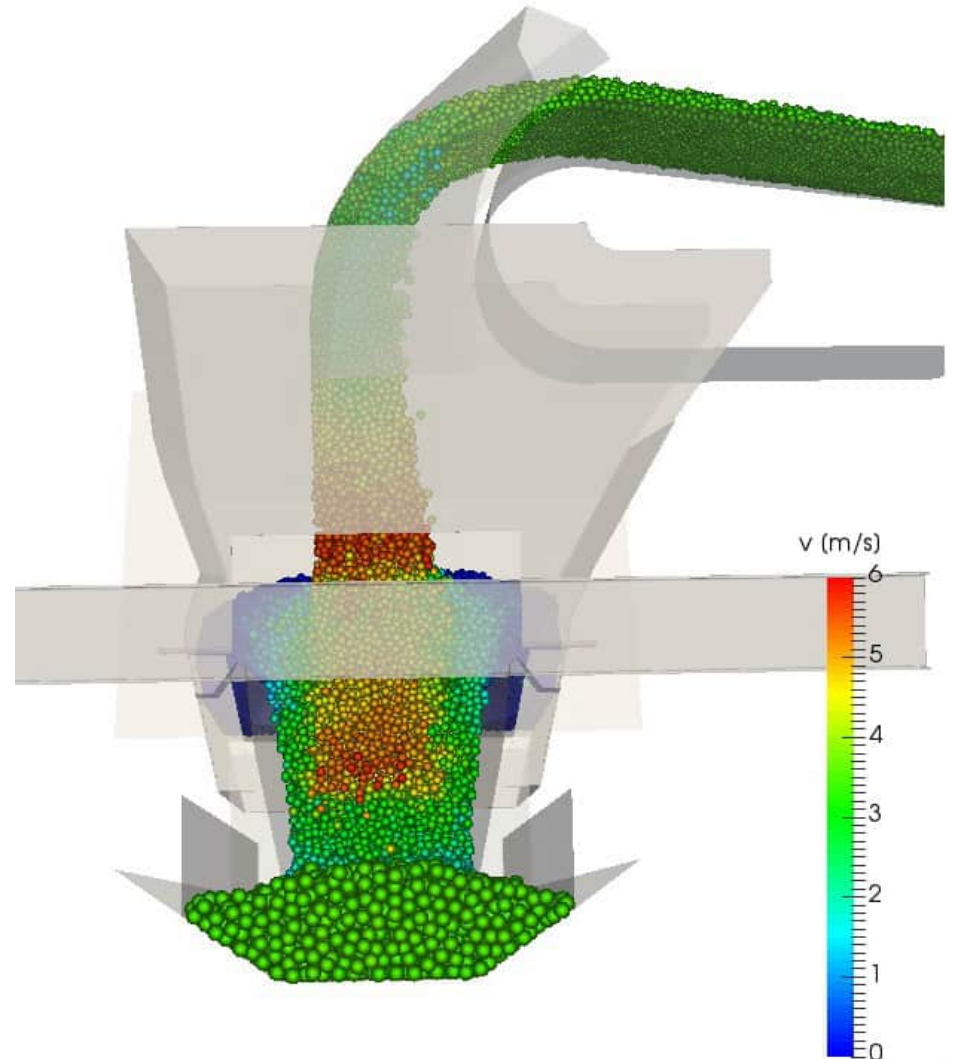
The wear application specialists visit the site and perform an audit to collect specific data to fully understand each customer's unique situation. Following detailed analysis and a technical review process, material selections are made to establish a wear system that will meet wear life and cost parameters.

## Concept and design development

Metso works with clients through consultation, meetings, and site visits to develop a solution that will deliver the necessary results. The team manages this process from the initial concept stage to implementing a new design and beyond, into continuous improvement.

## DEM simulation and physical modeling

Discrete element modeling (DEM) provides a real-world simulation and accurate results that can be used with confidence to validate new designs and check the performance of proposed modifications. Physical modeling allows for further testing and validation to ensure all solutions perform to the required standard. These simulations and modelings, in combination with our vast experience, make it possible for us to provide you the right solution.



# In-house design and engineering





# Metso Wearback™ tailor made chutes

Utilizing a rock-on-rock design, the custom-built Wearback™ chutes take advantage of the build-up of material to dramatically prolong wear life compared to a conventional chute lining.

## Wearback™ chutes are engineered to last

Wearback™ chutes are engineered and designed with a series of ledges that allows for the transported material to build up throughout the transfer chute – acting as an “extra” layer of wear protection against itself.

## Rock-on-rock design

The “rock-on-rock” design prolongs wear life by as much as 400% compared to conventionally lined chutes. It also helps to dampen the noise.

## Softer loading

Concentrating the ore stream and delivering the transported material with a softer loading at velocities and direction that closely matches the conveyor’s speed and direction minimizes the impact and wear on the conveyor belt.



Rock-on-rock design  
optimizes performance



Prolong wear life  
by as much as 400%





# Metso Xledge™ chute lining solutions

With an optimized chute design from Metso, it may take as few as just five different size Xledge™ liners to fully line a Wearback chute.

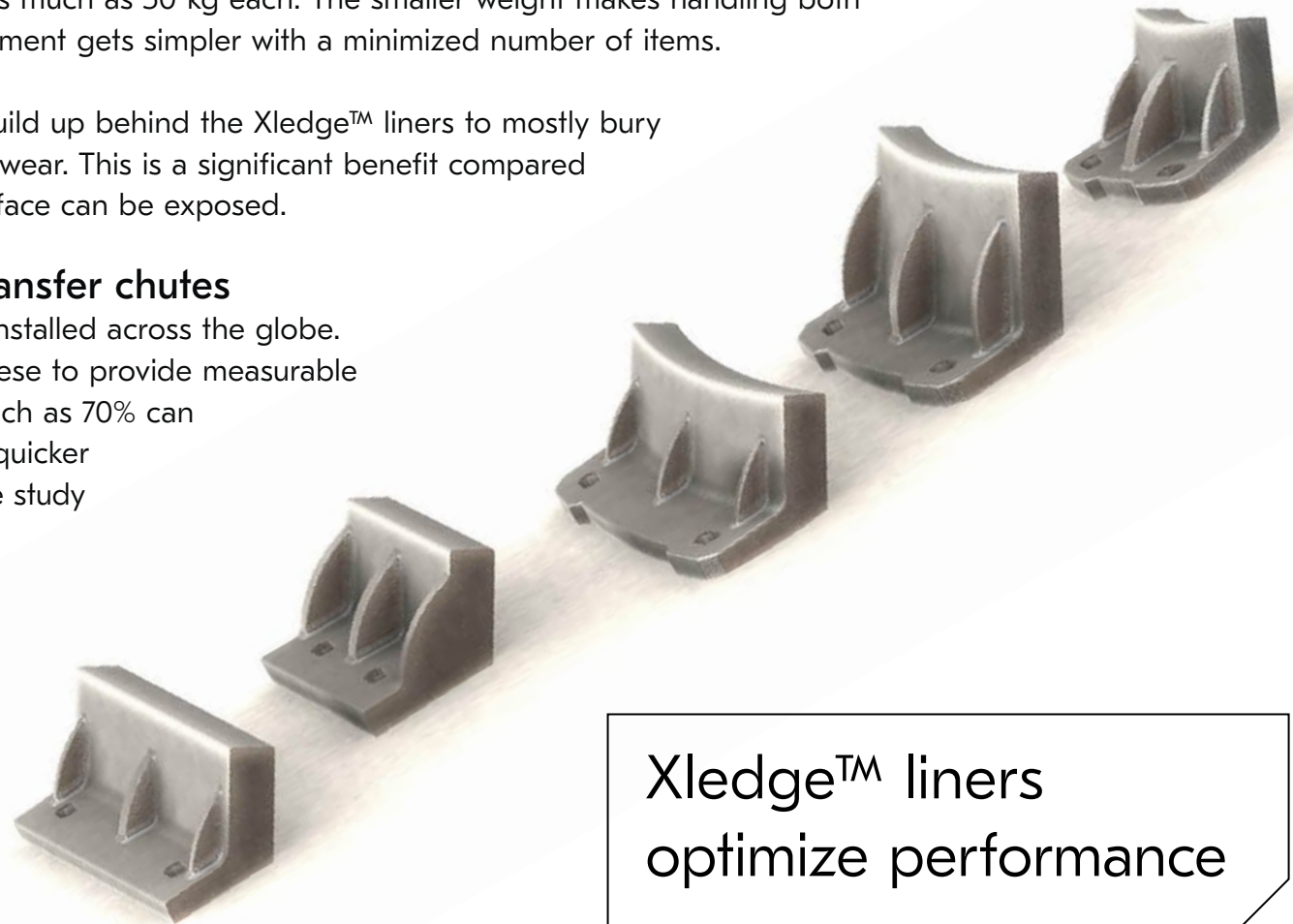
## A lighter but stronger and safer solution

Xledge™ wear liners come in a range of different sizes and shapes – all weighing in under 25 kg, whereas traditional liner parts can weigh up to as much as 50 kg each. The smaller weight makes handling both safer and easier, and inventory management gets simpler with a minimized number of items.

The Wearback™ design allows ore to build up behind the Xledge™ liners to mostly bury the liner, only exposing the top face to wear. This is a significant benefit compared to a square billet, where the entire top face can be exposed.

## Replacing poor performing transfer chutes

Many rockbox style chutes have been installed across the globe. Xledge™ liners can be retro-fitted to these to provide measurable improvements. Labour savings of as much as 70% can be achieved as the Xledge™ liners are quicker and easier to change. An Australian case study showed an annual total cost reduction of 80% (parts and labor).



Xledge™ liners  
optimize performance





As much as 70% less  
maintenance work

# Metso chute lining solutions



## Gridlock™ wear lining

- Gridlock™ is a modular range of wear liners incorporating a unique 'anti-wash' and gridlock interface designed to:
- Eliminate joint wash generated using traditional square liners
- Ensure maximum utilization of the liner's available wear material is achieved
- Eliminate failure of assets such as chutes, skips, and feeders
- Make liner replacement easily forecasted

## Rock Box wear lining

The Rock Box wear lining is designed to capture fine material and effectively use it as a protective layer. Rock-on-rock design results in minor wear on the lining itself. The Rock Box solution is ideal for areas subject to impact.





## Xlok™ modular liner system

Metso Xlok™ is a tough modular liner system and the ultimate choice for situations where equipment can only be accessed from the inside or where a single-sided bolting system provides maintenance savings. Xlok™ delivers consistent liner position on all four sides with no guesswork or measuring to install as the backplate automatically spaces the liners.



## Xalloy wear linings

Xalloy wear linings are bimetallic sheeting solutions, which offer resistance to extreme abrasion and also some impact. Xalloy wear linings are manufactured using state of the art welding technology to apply a highly alloyed chromium carbide based material to a mild steel backing plate. The wear resistant layer offers a consistent microstructure and high hardness level. The plate can be cut to size and fastening system applied to suit the required application.

## Case: Karara Mining, Australia

Karara Mining increased transfer chute utilization and reduced labour costs when they installed Metso Xledge™ liners.

### Customer results:

- Improved safety
- Reduced costs
- Increased uptime
- Optimized throughput
- Prolonged asset life





# Karara Mining saves time and money with a customized liner from Metso



## Challenge

Existing transfer chute liners required regular repairs by welding strips of Q & T plate or chocky blocks onto the existing shelves. This work was an extremely time-consuming task, resulting in high labor costs associated with hot work and working in confined spaces.

## Solution

Metso created a solution that involved replacing the worn shelves and bolting on customized Xledge™ liners, each secured by only two fasteners. The advantage of bolted Xledge™ liners is that they can be replaced individually as opposed to digging out the chute and replacing half the shelf.

## Results

- Labor hours were reduced by 70%\* as the new liners are quicker and simpler to change.
- Reduced labor hours in a confined space means significantly lower safety risks.
- Increased throughput in the HPGR circuit from 34 million tonnes to 36 million tonnes\* due to reduced shutdown durations.
- In total, the cost reduction was as much as 74% (parts and labour)\*



# Metso Trellex™ chute lining solutions

Trellex™ wear lining is a range of wear protection solutions that minimizes wear, improves flow, and reduces noise while increasing service life.

Trellex™ wear lining  
increases service life





## Wear improvement

Reach the maximum wear life and production capacity of the original equipment by protecting this with rubber wear plates. Whether a wet or dry application, small or large material size, or different impact angles. Trellex wear protection will do the job.

## Flow improvement

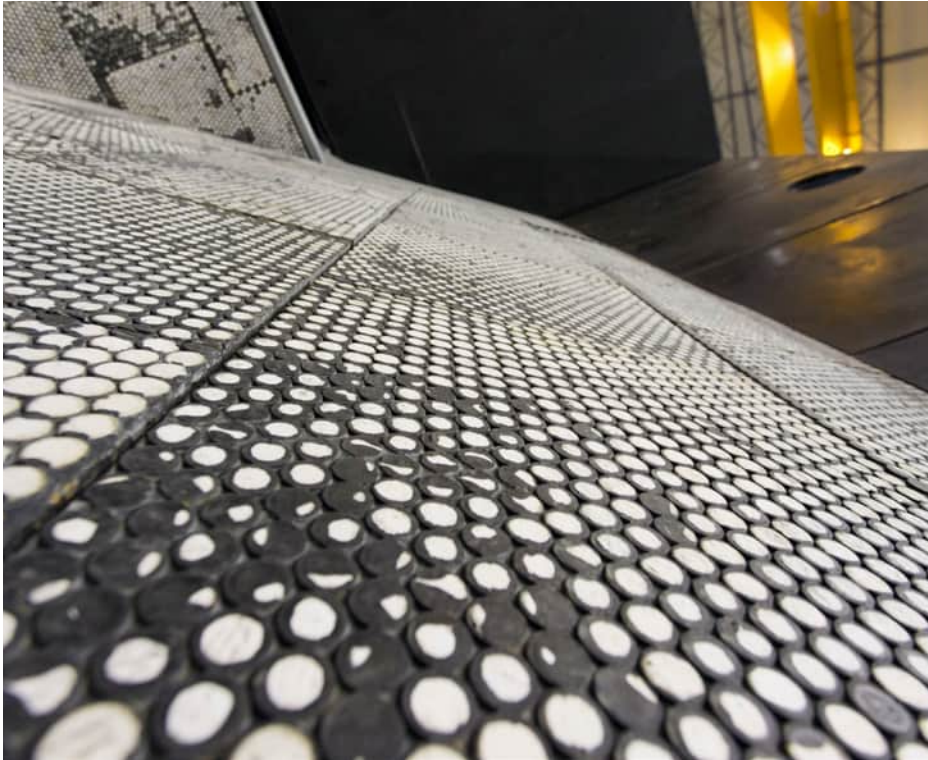
Improve poor material flow in the process caused by a narrow sector. Such spots can be a real bottleneck in the process and create a lot of additional work and unplanned downtime.

## Noise-reduction

Excessive noise is a problem in mining and construction operations. Managing noise pollution is more important than ever. All wear rubber products such as Trellex will contribute to reducing noise, and reduced noise means better work conditions.



# Metso Trellex™ chute lining solutions



## Trellex Poly-Cer

The Poly-Cer offers excellent results when used with high volumes and high material velocities in mining and aggregates applications, particularly where abrasion is high, and the angle of impact of material against the plates is small. The ceramic surfaces provide exceptional wear resistance while the elasticity of the rubber absorbs the impact. Typical applications are chutes and transfer points, as well as material deflectors and screening chutes.



## Trellex wear elements

Trellex wear elements are a wide range of basic wear plates, including Trellex PP. The wear elements are manufactured in rubber or polyurethane and comes with different fixing solutions for reliable installation. Trellex wear elements provide first-class wear protection in applications such as chutes, truck beds, feeders, silos, and other applications subject to wear and noise. Manage high impact as well as sliding wear.





## Trellex SQ 300

Trellex SQ 300 is a modular liner system that brings together rubber, polyurethane, and ceramic to maximize flexibility and wear protection. Trellex SQ300 provides excellent wear protection for feeders, bins, chutes, silos, and other applications subject to wear and noise.



## Trellex wear sheeting

Trellex wear sheeting has proved a long wear life in comparison with other wear materials like steel. Fewer stops and less production losses increase your profitability. Depending on the application, you can choose from rubber or polyurethane wear sheeting.



## Trellex LF

Trellex LF plates minimize surface friction to prevent material from sticking and is an excellent solution for bins, chutes, silos, and other low wear applications that require extremely low friction.

## Case: LEAG lignite mining, Germany

Mining and aggregate applications are tough on equipment, which can make it even tougher on budgets. Metso wear lining keep your productivity up and maintenance time down with a range of wear protection products designed to maximize capacity and profit. The wear lining offering includes a wide range of products designed to best support your needs in keeping the total cost per tonne down.

### Trellex features:

- Improved safety
- Maximize productivity
- Increased profitability
- Wide range of wear lining products
- Wear improvement
- Flow improvement
- Noise reduction







## The Trellex™ Poly-Cer solutions from Metso increase lifetime, improve safety, capacity and profitability

### Challenge

To design and deliver lining for a transfers chutes for lignite mines with 2 m wide belt width with a speed of 9 m/s and to handle overburden material with a capacity of 200 000 m<sup>3</sup>/day. The Trellex lining provides exceptional performance and deliver the results expected by Europe's largest lignite mine.

### Solution

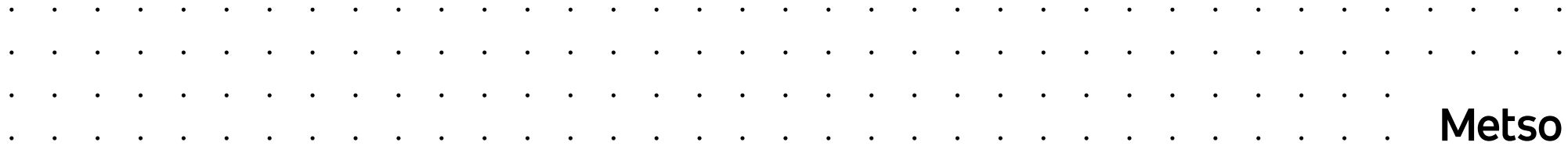
- Metso to design a wear lining to fit a curved chute design
- A combination of Trellex wear product to best fit the application
- A tailor-made wear lining based on Trellex Poly-cer elements and Trellex SP-elements to best suit the application to improve wear life and profitability

### Results

- Increased lifetime from 2 weeks lifetime for steel to 24 weeks wear life for Poly-Cer 38
- Improved capacity 12 times less maintenance stop
- Improved safety, less replacement of lining/simplified installation
- Improved profitability/increased throughput

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

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**Metso**