

Metso

Loading and hauling solutions

Haul more with less

Handbook version 1.0



Payload management solutions

Metso relies on a global pool of over 16,000 dedicated employees to help our customers achieve results in every part of their operation.

The loading and hauling operations in the mining and aggregates business require the toughest equipment to stand up to the challenge of running a smooth day-to-day operation in the most cost effective way and to meet the environmental requirements.





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Your partner for maximum productivity

Working with Metso represents a flexible and reliable partnership towards maximizing productivity. A partnership that goes beyond the production, supply and stocking of products. We advise on the best possible configuration and choice of liners to ensure that the truck bed lining maximizes production and minimizes downtime while being as sustainable as possible.

Partnering with Metso means having more options from the widest range of dependable lining solutions from a single source and the peace of mind of continuous support from a partner whose definition of success is how well we contribute to yours.

Keep your trucks moving

Our customers strive to increase uptime, maximize throughput, reduce costs and improve safety while also managing sustainable business operations. This can be challenging from a loading and hauling perspective. Protecting the truck fleet with the correct truck body and rubber lining design can help with those issues..

Metso helps you achieve your strategic objectives by finding solutions that increase the efficiency of your operation.



Improved safety

- Spending fewer hours on servicing means improved safety
- Light-weight design with CE-certified integrated lifing tools allows for safe and easy change-outs and shorter maintenance stops
- Minimized manual handling
- Fewer hot work situations and less exposure hazardous fumes during installation
- Up to 50% noise reduction and up to 97% less vibrations improve working conditions

Increased uptime

- Long wear life means fewer stops
- Faster installations using our tools, fasteners and installation methods
- Liner design optimized for quick installation and removal

Reduced costs

- Reduced downtime
- Improved wear material utilization
- Lower operational cost per ton

Improved sustainability

- Only change liners that need to be changed
- Recycle liner material, where possible
- Reduce wastage through better material utilization
- Rubber lining compound does not contain PAH (Polycyclic aromatic hydrocarbon) - a substance linked to increased risk of cancer

Next-level performance

We can take your wear protection to the next level by combining our expertise in optimized wear liners and unique services and tools with the knowledge you have of your process.

Metso process of optimization

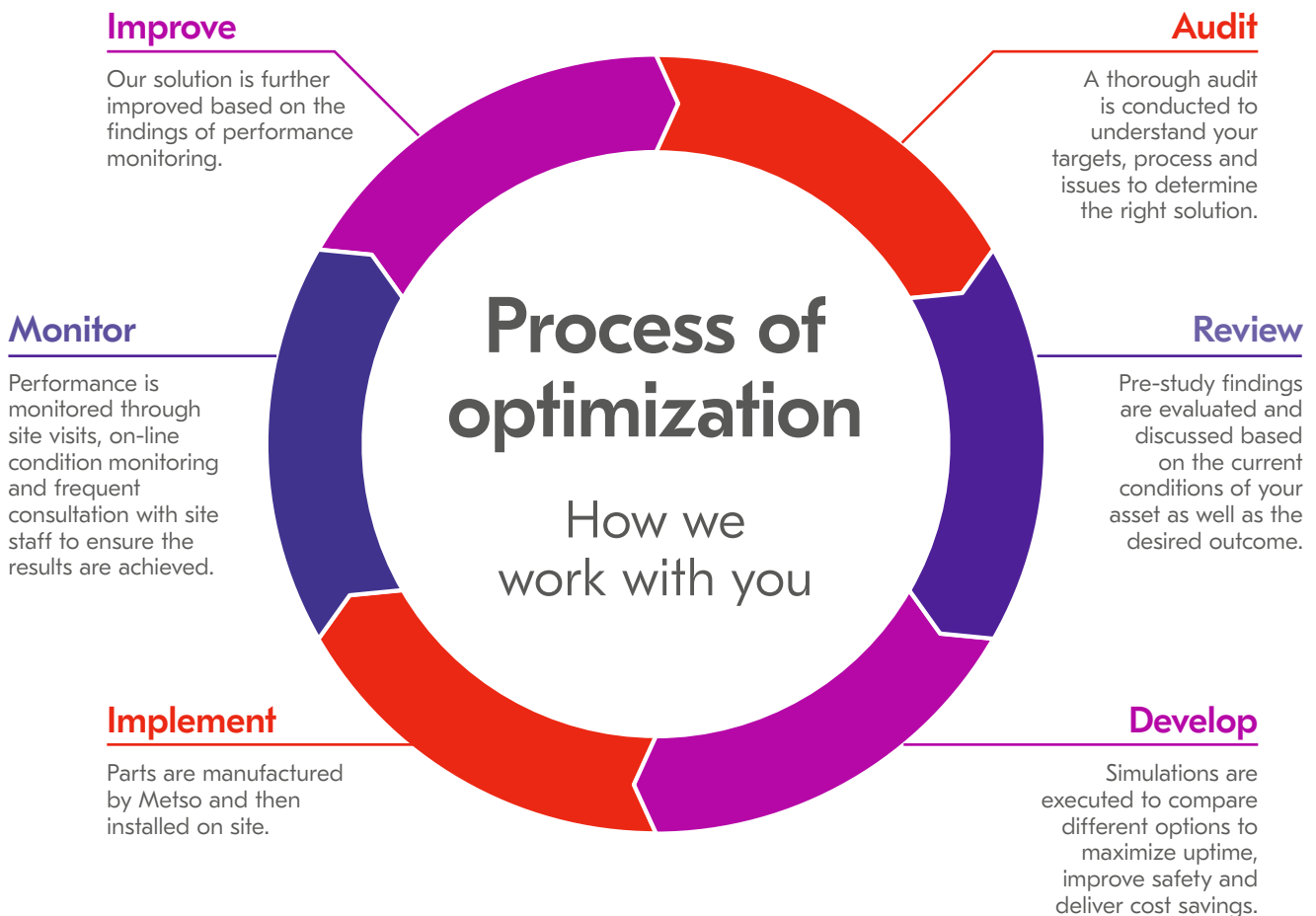
When your process changes, we change along with it. Change is the only constant. For us, continuous optimization means working closely with you to truly understand your process and to improve it accordingly.

The process of optimization is at the heart of how we do business and operate. Not only do we perform a thorough **audit** and **review** of your operation, we also carefully simulate and compare different options to ensure the solution selected is the right one.

Excellent results can often be achieved by combining materials – such as metals, rubber, polyurethane and ceramics – and taking full advantage of the best features of each.

Our products are **produced** using state-of-the-art technology and efficiently installed using safe tools and methods. And when the parts are in operation, we **monitor** closely and make improvements if needed. This enables performance improvements that maximize plant efficiency, minimize downtime and ensure measurable cost savings.

With **Metso**, you don't just get wear parts, you get continuous performance **improvement**.



Truck bed lining

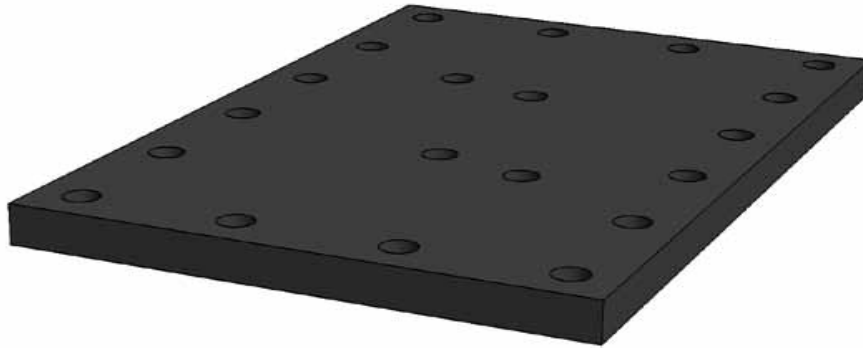


Metso truck bed lining outtoughs steel

Metso wear rubber lining has a number of advantages over their steel counterparts. The rubber compounds, developed from years of on-site experience in the toughest mining conditions globally, offer as much as 400% more service life than steel. Metso rubber linings are optimized to absorb stress at every point in the truck work cycle, during loading, transportation and unloading. Their low weight/high wear-resistance design not only reduces damage to the truck body, but to the truck overall. Spreading and absorbing the kinetic energy of material impact to protect bearings, transmission, tires and chassis – and minimizing the cost for service and damaged equipment.

Lower costs, higher profits

Metso truck bed lining is a modular system, so worn-out and damaged panels can be replaced individually as needed rather than replacing the entire lining; this keeps profit-eating downtime for repair and maintenance to a minimum. The optimized shock-absorbing properties help to reduce costs spent to replace lining and other truck parts.



Metso truck bed lining modular panels are designed for tough conditions. The rubber compound is highly resistant to wear and impact. Reinforcement embedded in the rubber prevents contact with corrosive materials and the rubber panel backside fits better than a wear steel lining on uneven surfaces.

Up to 400% longer wear life

Metso rubber compound is developed especially for truck bed applications. The solution offers a unique combinations of impact resistance, wear resistance and energy-absorbing properties. The Metso truck bed lining outlasts a conventional steel lining by up to 400%. For best results, the Metso truck bed lining is always custom-engineered to fit the application. Different thicknesses can be used in different areas, depending on factors such as loading equipment, impact angle and material size.

Available for all major off-highway trucks

The Metso truck bed lining increases fleet availability, regardless of the brand of truck and truck box.

A safe and sound working environment

Optimizing working conditions can make a big difference in the well-being and safety of your drivers. Users reported the truck bed lining reduced noise by half, and some reported even quieter results. Combined with reduced vibrations by as much as 97%, these truck bed liners make the working environment better, and therefore positively impact health and safety.

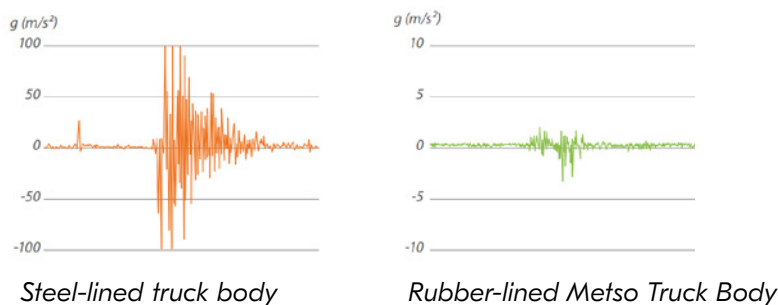
50% less noise

Managing noise pollution is more important than ever, both for the health and safety of your employees and to satisfy regional legislative demands. The Metso truck bed lining absorbs impact better than steel ever can and reduces noise on average by 10-15 decibels – that's like cutting the noise by half or more. You can really feel and hear the difference when sitting in the operator cabin during loading and dumping.

97% less vibrations

Mining haul trucks operate in demanding environments, so optimizing working conditions isn't just about comfort, it's also crucial for ensuring the well-being and safety of drivers. Reducing vibrations is a key factor in optimization. It enhances operator comfort and it plays a pivotal role in mitigating wear and tear on critical components, thus minimizing maintenance requirements and maximizing operational efficiency.

When comparing a steel-lined truck body to a Metso truck bed lining, measurements show that up to 97% of the energy from the impact during loading is absorbed in the rubber-lined truck body. Consequently, the vibrations dissipate before reaching other parts of the truck structure, including the operator cabin.



Vibrations measured in the tray bottom during loading in a truck body lined with steel (left) compared to a Metso Truck Body (right). The result shows 97% less vibrations in the Metso Truck Body. Please note the different scales required to illustrate the difference of the measurements.

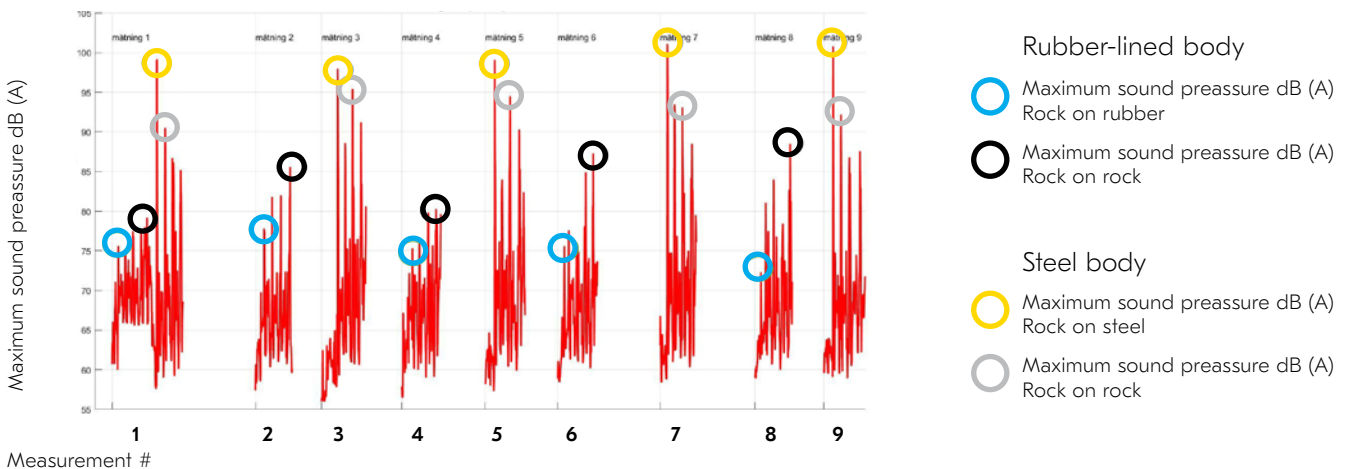
Noise measurement test

An external engineering company was hired to measure the noise levels when loading rock into dump trucks at one of our customer's open pit mine. Two different truck bodies were used during the measurements – a steel-lined one and a rubber-lined one – making it possible to measure the sound level differences between them.

Result

The test result showed a noise reduction of up to 25 dBA with the rubber lining compared to the steel lining. The report also showed that the second pass with rock on rock was actually louder than the first pass with rock on rubber. The test demonstrated that using rubber liners in mining haul trucks makes a big difference in reducing the level of noise when loading stones onto the trucks.

To put it into perspective, a reduction of 25 dBA is like turning down the volume from rock concert level to a normal conversation. It's a significant difference that most people would notice immediately. So, the rubber liners not only make the work environment more comfortable for the drivers, they also improve the quality of life for everyone around the mining site by making it quieter.



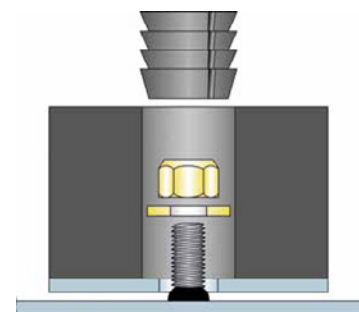
Installation

Bolted rubber elements require no welding during maintenance

The Metso truck bed lining consists of elements that are bolted in place, utilizing pre-welded studs. Worn elements are changed individually using a stud arc welding gun. This system provides a clean and consistent weld that fuses the bolt to the metal surface of the body and is far superior to both traditional welding and oxyacetylene welding.

Installation time

Installation time varies depending on local conditions. Installing the lining of a 400-ton truck could take 3-4 days, depending on access to equipment and availability of personnel. It's important to ensure that the truck body surface is in a good condition before the lining installation starts. Any damage to the truck steel body needs to be repaired. To facilitate installation and minimize the time it takes, Metso supplies all the material in pallets/boxes marked with part numbers and item numbers corresponding to the general drawing and parts list. Installation should be performed in a covered area, protected from rain/snow, in order to secure the stud welding process. Metso always follows the safety regulations at each plant and applies some of its own safety practices to make installation as safe as possible.



Typical fixing parts including stud bolts, washer, nut and rubber plug



For increased safety and easier handling a CE-certified lifting tool is included in the liner package.

Metso truck bed lining selection guide

	Low impact	Medium impact	High impact
	Drop height: max. 2 m (78") Material size: max. 75 mm (3") Material weight: max. 30 kg (66 lb)	Drop height: 2-3 m (78"-118") Material size: 72-250 mm (3"-10") Material weight: max. 300 kg (660 lb)	Drop height: over 2 m (118") Material size: 250-1000 mm (10"-40") Material weight: max. 3000 kg (6600 lb)
Low Wear Typical wear life of lining: up to 8.8 MTons	TBL 100	TBL 100	TBL 125
Medium Wear Typical wear life of lining: 8.8-13.2 MTons	TBL 100	TBL 125	TBL 150
High Wear Typical wear life of lining: above 13.2 MTons	TBL 125	TBL 150	TBL 150

To achieve long durability of the truck bed lining, avoid loading material of 1 meter (39") in size in the first pass.

Thickness comparison

Metso truck bed lining thickness			Steel wear lining thickness
TBL 100	100 mm	=	15 mm
TBL 125	125 mm	=	20 mm
TBL 150	150 mm	=	25 mm

Saving time and money

Time is money in the mining and construction industries, and downtime during liner replacements can be expensive. Metso understands the urgency of getting your trucks back in action, and that's why we have developed specialized tools, fasteners, and installation methods that expedite the liner replacement process.

Our easy-to-use tools and fasteners are designed with efficiency in mind, allowing your maintenance teams to complete installations in record time. Whether you're working on-site or in a maintenance shop, our products and methods are optimized to minimize truck body downtime.

The sustainable edge of Metso Truck Body

In an era where environmental responsibility is paramount, Metso takes pride in its commitment to sustainability in the design and manufacturing of truck bodies. For Metso, sustainability isn't just a buzzword; it's a fundamental part of our ethos. In this chapter, we'll explore how Metso truck bodies lead the way in terms of improved sustainability through smart design, responsible material choices, and their unique contribution to reduced fuel consumption and CO₂ emissions.

Only change liners that need to be changed

One of the pillars of sustainability is minimizing waste. Metso understands this principle well. Rather than a blanket approach of replacing all liners at regular intervals, our truck bodies are engineered to help you make informed decisions based on the actual wear and tear of each liner. Rather than a blanket approach of replacing all liners at regular intervals, we enable you to make informed decisions based on the actual wear and tear of each liner.

Wear monitoring and predictive maintenance

Metso's innovative wear monitoring solutions empower operators to assess the condition of individual liners. This data-driven approach means you replace only the liners that have reached the end of their useful life, reducing unnecessary waste and replacement costs.

Recycle liner material, where possible

Sustainability isn't just about reducing waste, it's also about recycling and reusing materials. Metso is dedicated to recycling liner materials whenever possible.

Responsible disposal and recycling

When liner materials are removed, we encourage responsible disposal and recycling practices. Many of the materials used in our liners are recyclable, and we work with our customers to facilitate their recycling efforts. This not only reduces the environmental footprint, it also contributes to cost savings in the long run.

Environmental effects on rubber lining parts

Water

(Recommendations valid for handled material temperature up to 70°C (158°F)).

Rubber lining	
pH range	Comment
pH 2 - 13	No effect on rubber/PU lining
pH 2 - 4	Avoid metal parts exposed to handled material
pH 4 - 11	No effect on steel parts exposed to handled material

Temperatures

Rubber lining	
Temperature range	Comment
-25 to +70°C (-13 to +158°F)	No effect on rubber/PU lining

The truck bed lining withstands moderate concentrations of chemicals and oils.

PAH-free rubber lining compound

Metso is committed to using safe and environmentally responsible materials. One way we achieve this is by ensuring that the rubber lining compound used in our truck bodies does not include any PAH (Polycyclic Aromatic Hydrocarbon). PAH is a substance linked to an increased risk of cancer and is considered a hazardous material.

Health and environmental considerations

By excluding PAH from our rubber lining compound, Metso prioritizes the health and safety of both workers and the environment. This responsible choice demonstrates our commitment to reducing potential harm and long-term environmental impact.

Storage

The truck bed lining must be protected from sunlight, excessive heat and ozone. Indoor storage is recommended when storing rubber lining for longer than 6 months.

Improved safety with Metso Truck Body

In the pursuit of operational excellence in the mining and construction industries, safety should always be of paramount concern. Metso understands the critical importance of safety in these demanding environments and that's why our truck bodies are engineered to enhance safety in multiple ways.

Maximized wear protection at the lowest possible weight

The elastic rubber of the Metso truck bed lining absorbs the energy of every impact during operation, preventing it from reaching the frame and thus allowing for a lighter-than-usual steel frame of high structural strength under the rubber. This enables the body to absorb maximum shock at the lowest possible weight.

Bolted rubber elements require no welding during maintenance

The rubber lining in the Metso Truck Body consists of elements that are bolted in place, utilizing pre-welded studs. Worn elements can be changed individually, and replacing them requires no welding or oxycutting.

Minimized manual handling

Manual handling of heavy components can lead to workplace accidents and injuries. Metso Truck Bodies are designed with a focus on reducing manual handling requirements. This design philosophy lessens the risk of musculoskeletal injuries and accidents caused by heavy lifting.

Reduced hot work situations and hazardous fumes

Metso Truck Bodies are engineered to minimize hot work situations. Fewer instances of welding and cutting mean lower exposure to hazardous fumes, enhancing the safety of your personnel. The reduced need for air arcing during maintenance contributes to a safer working environment.

Risk ranking and reduction in risk of exposure

Below is an example of a risk comparison between a steel-lined truck body vs a rubber-lined truck body.

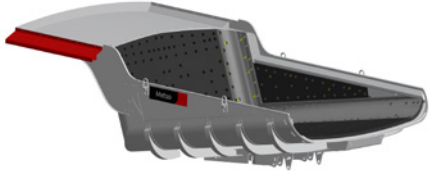
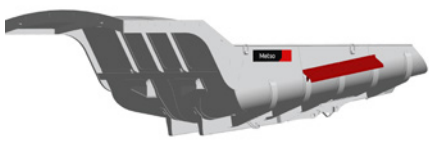

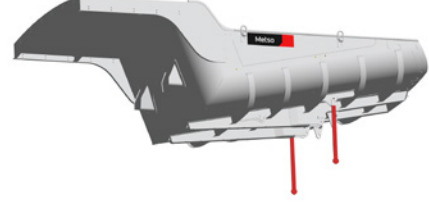
12 Month Period	Man Hours	Risk Ranking	Total Risk
Risk ranking on work factor steel liners install and maintenance	1 400	15	2 380,00
Risk ranking on work factor rubber liners install and maintenance	340	7	
Reduction on risk			88,67%

Date: DD-MM-YYYY Task/plant/equipment: Komatsu 930E Truck bed lining Location:			Scope: Install and change of truck bed liners				
Consequences			Likelihood				
			Almost Certain	Likely	Possible	Unlikely	Rare
Keyword	Description safety, health and hygiene	Description environment	Expected to occur	Will occur occasionally	May occur	Not expected to occur	Requires unusual chain of events
Minor	First aid injury	On-site release, immediately contained with on-site resources	Medium 8	Medium 7	Low 2	Low 2	Low 1
Significant	Medically treated injury or illness	On-site or off-site release, immediately contained with on-site resources	High 14	Medium 10	Medium 9	Low 5	Low 4
Serious	Lost time injury or illness	Off-site release causing nuisance or community complaint. Breach of license or DA condition	High 16	High 20	Medium 12	Medium 11	Low 6
Severe	Fatality or permanently disabling injury or illness	Off-site release with detrimental impact to environment or community. Repeated breach of license conditions	Extreme 24	Extreme 22	High 20	High 18	Medium 13
Disastrous	Multiple fatalities, multiple work-related fatal diseases	Toxic release off site with detrimental impact to environment or community	Extreme 25	Extreme 23	Extreme 21	High 19	High 17


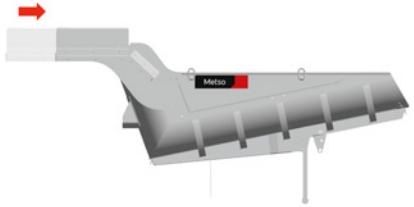

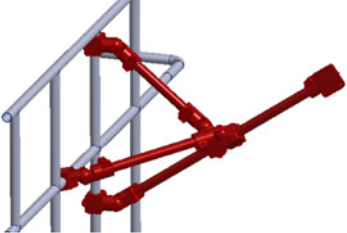
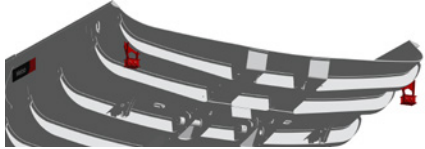
Legend	Action required	Person responsible
Low = 1-6	Tolerable - Manage by routine	
Medium = 7-13	Risk reduction required to as low as reasonably practicable (ALARP)	Supervisor
High = 14-20	Immediate action required to reduce risk. JSEA to be signed off by Site/Work group manager or authorized delegate prior to proceeding with task.	Site/Work group manager
Extreme = 21-25	Intolerable. Cease activity and notify senior management. Controls must be implemented in consultation with senior management to reduce risk prior to recommencement.	Senior Vice President/ Country manager

Metso Truck Body

Accessories

Product	Image	Description
Canopy rock deflector		<p>Canopy side extension to cover the working environment of the driver and mirrors.</p>
Rear tire protectors		<p>Extra protection in cases where the body is narrower than the wheels or protection is needed for other reasons.</p>
Mudflaps		<p>Mudflaps in the same positions as the OEM.</p>
Rock ejectors		<p>Rock ejector is delivered when OEM body solution uses Rock ejectors.</p> <p>When OEM solution is chains or other means, Metso will not provide those.</p>

Accessories

Product	Image	Description
Body safety locking pin/cable		Locking cables or pins provided as in OEM solution.
Trolley canopy		Shortened canopy for trolley system.
Canopy extension		Especially needed with shortened canopy for trolley system.
Mirror extension bracket		When body is too wide for OEM mirror brackets, Metso can provide extensions.
Customization		Upon request, options such as tail lights (shown in the image), custom paint, reflective striping are available.

What is payload?

Payload is a key concept in hauling, as it measures and compares the effectiveness of the process. However, there is often a big discrepancy between nominal and actual payload, which affects the efficiency and profitability of hauling operations. Therefore, closing this gap is essential for optimizing the performance and reducing the costs of the process.

Nominal payload

This is the payload given by the manufacturer of the truck and the payload mentioned in the technical specifications. Nominal payload is usually based on the design of the truck and does not account for the actual conditions of the operation, such as terrain and fuel consumption. Nominal payload is often used as a theoretical measure of the truck's performance and efficiency, but it may not reflect the actual payload that the truck can achieve in practice.

Target payload

A more precise way to refer to payload is to talk about the target payload. It represents the ideal weight that the haul truck can handle safely and efficiently, taking into consideration factors such as extra weight from body lining and accessories that affect the payload. A lighter body will result in a higher target payload, as it reduces the weight of the truck itself. Achieving the target payload involves optimizing the fill factor. If the truck consistently carries less than the target payload, it's underutilized.

Actual Payload

Actual payload is a metric used to show the real, measured payload carried by a truck during operation. The actual payload is impacted by factors such as load density, weight distribution and operational conditions. The density and shape of the hauled material will contribute to determine the fill factor and together with the target payload decide the actual payload. Variances between the actual payload and the nominal or target values highlight inefficiencies and areas for improvement.

Payload comparison example

Reducing the gap between nominal, target, and actual payload is crucial for optimizing hauling efficiency. By leveraging technology and operational strategies, businesses can accurately represent their load capacities, improving reliability and promoting cost savings and sustainability.

+ 84 244 ton
increased payload/year*
with Metso Truck Body



* Based on 2 hauls per hour and 6 000 operating hours per year.

Aggregates Truck Bodies



Metso

Metso

H2005

KOMATSU

Metso Truck Body for aggregates

The Metso Truck Body is available in standard configurations for trucks from CAT and Komatsu. Other OEMs are available upon request.

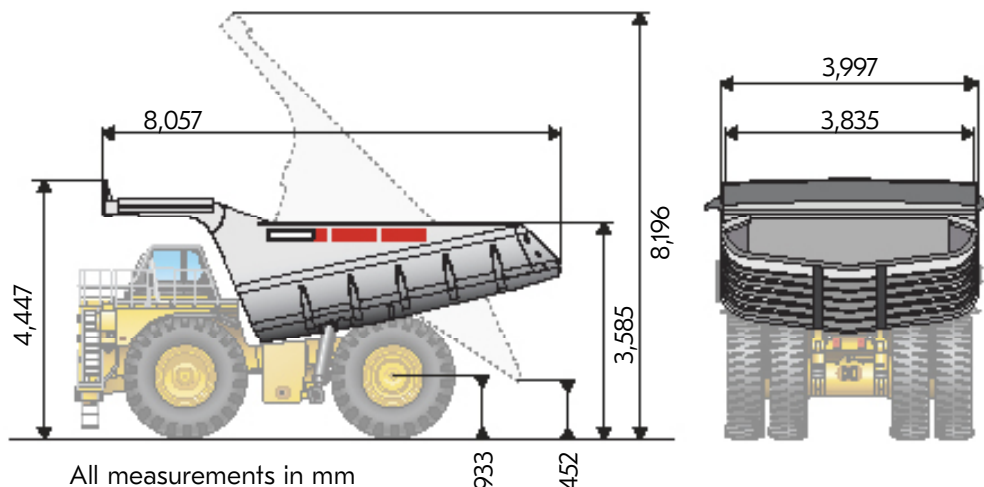
Metso Truck Body models for aggregates		
Truck Body model	OEM truck	Application
MTB 405	Komatsu HD 405	Aggregates
MTB 605	Komatsu HD 605**	Aggregates
MTB 785	Komatsu HD 785	Aggregates/Mining
MTB 772	CAT 772	Aggregates
MTB 775	CAT 775*	Aggregates
MTB 777	CAT 777	Aggregates/Mining

* MTB 775 fits CAT 773 with the possible need for adjustment and adaptation to the attachment system.

** Fits also HD 465 with the possible need for adjustment and adaptation to the attachment system.



Metso Truck Body for Komatsu HD405-8



Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	77,415 kg	
Empty chassis weight	27,435 kg	
Steel body weight	5,775 kg	9,900 kg
Lining weight	2,724 kg	2,200 kg
Total body weight	8,499 kg	12,100 kg
Machine operating weight	35,934 kg	39,535 kg
Target payload	41,481 kg	37,880 kg*

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		31 m ³	27.3 m ³
Density 1,600 kg/m ³	Load volume	25.9 m ³	23.7 m ³
	Fill factor	84 %	87 %
Density 1,800 kg/m ³	Load volume	23 m ³	21 m ³
	Fill factor	74 %	77 %

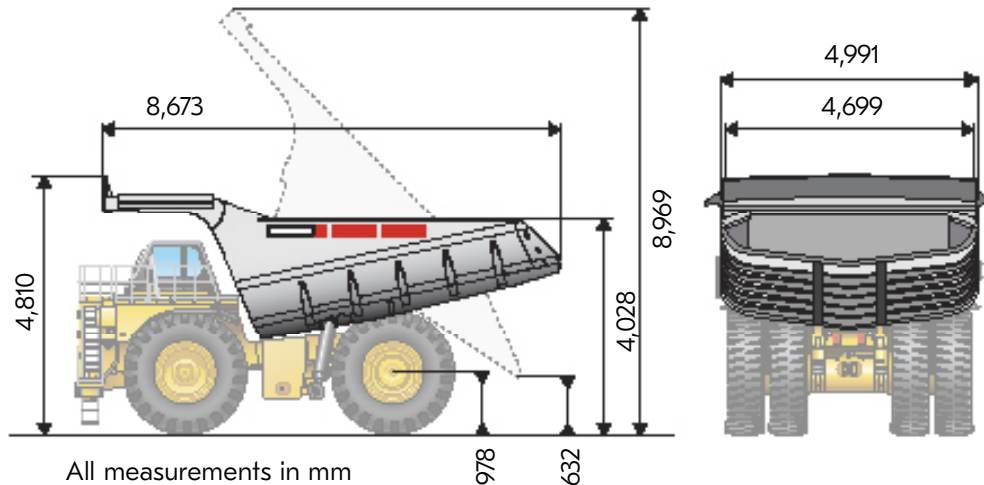
* Target payload without lining – OEM lining weight will reduce payload accordingly

Metso's different lining configurations – capacities and weights

			
Body weight	5,775 kg	5,775 kg	5,775 kg
Lining weight	2,724 kg	3,719 kg	3,874 kg
Floor thickness	100 mm	100 mm	100 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	100 mm
Body weight with lining	8,499 kg	9,499 kg	9,649 kg
SAE heap 2:1	31 m ³	30.5 m ³	30 m ³
Target payload	41,481 kg	40,486 kg	40,331 kg

All figures and images on this page are estimates. Changes and variations may occur.

Metso Truck Body for Komatsu HD605-8



Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	114,700 kg	
Empty chassis weight	38,120 kg	
Steel body weight	8,000 kg	13,300 kg
Lining weight	2,800 kg	3,000 kg
Total body weight	10,800 kg	16,300 kg
Machine operating weight	48,920 kg	
Target payload	65,780 kg	60,280 kg*

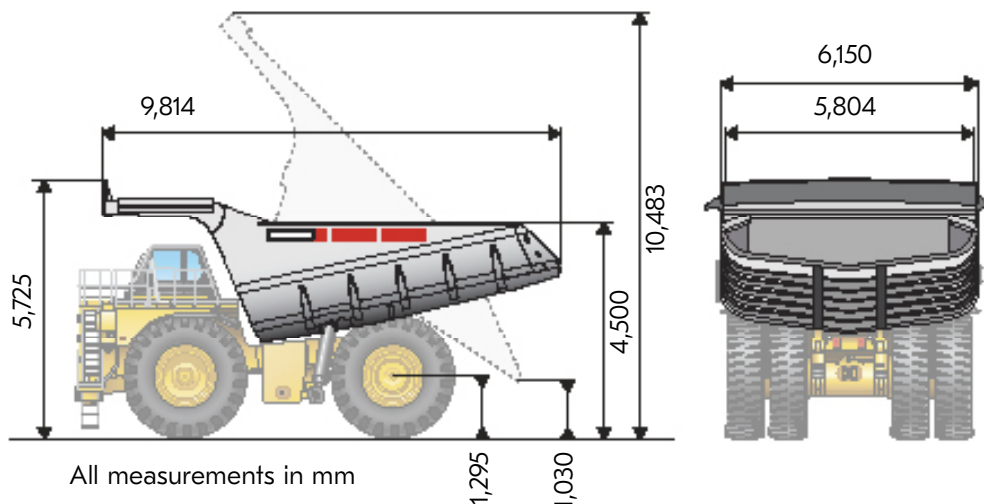
Volume calculation			
		Truck Body	OEM
SAE heap 2:1		47 m ³	40 m ³
Density 1,600 kg/m ³	Load volume	41.1 m ³	37.7 m ³
	Fill factor	87 %	94 %
Density 1,800 kg/m ³	Load volume	36.5 m ³	33.5 m ³
	Fill factor	78 %	84 %

* Target payload without lining – OEM lining weight will reduce payload accordingly

Metso's different lining configurations – capacities and weights			
			
Body weight	8,000 kg	8,000 kg	8,000 kg
Lining weight	2,800 kg	4,020 kg	6,086 kg
Floor thickness	100 mm	125 mm	125 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	100 mm
Body weight with lining	10,800 kg	12,020 kg	14,086 kg
SAE heap 2:1	47 m ³	46.5 m ³	45.8 m ³
Target payload	65,780 kg	64,560 kg	62,494 kg

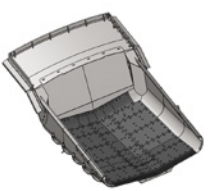
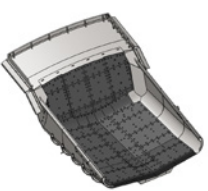

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Metso Truck Body for Komatsu HD785-8



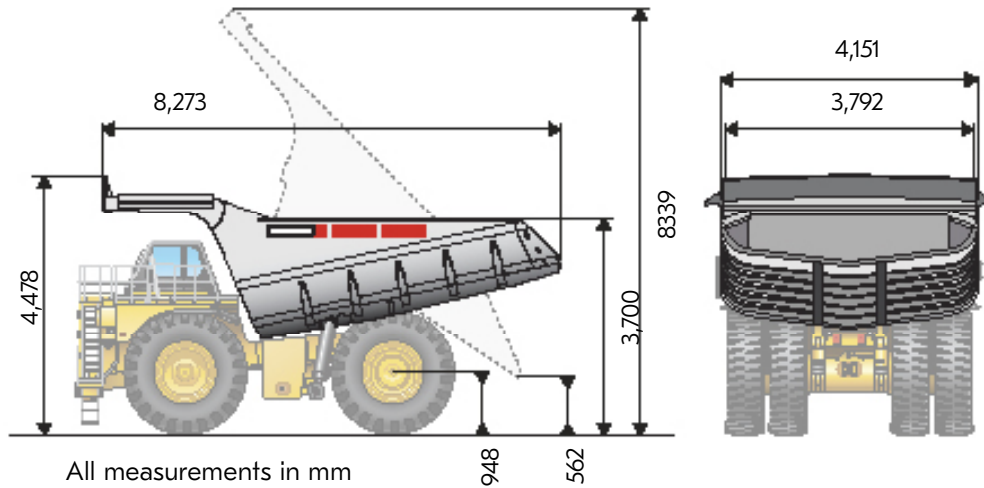
Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	166,000 kg	
Empty chassis weight	58,670 kg	
Steel body weight	10,792 kg	15,208 kg
Lining weight	8,661 kg	6,300 kg
Total body weight	19,493 kg	21,508 kg
Machine operating weight	78,123 kg	80,178 kg
Target payload	87,837 kg	85,822 kg

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		63 m ³	60 m ³
Density 1,600 kg/m ³	Load volume	54.9 m ³	53.6 m ³
	Fill factor	87 %	89 %
Density 1,800 kg/m ³	Load volume	48.8 m ³	47.7 m ³
	Fill factor	77 %	79 %

Metso's different lining configurations – capacities and weights			
			
Body weight	10,792 kg	10,792 kg	10,792 kg
Lining weight	5,389 kg	6,492 kg	8,661 kg
Floor thickness	100 mm	100 mm	125 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	100 mm
Body weight with lining	16,181 kg	17,284 kg	19,493 kg
SAE heap 2:1	64.6 m ³	64 m ³	63 m ³
Target payload	91,189 kg	90,086 kg	87,877 kg


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Metso Truck Body for CAT 772G



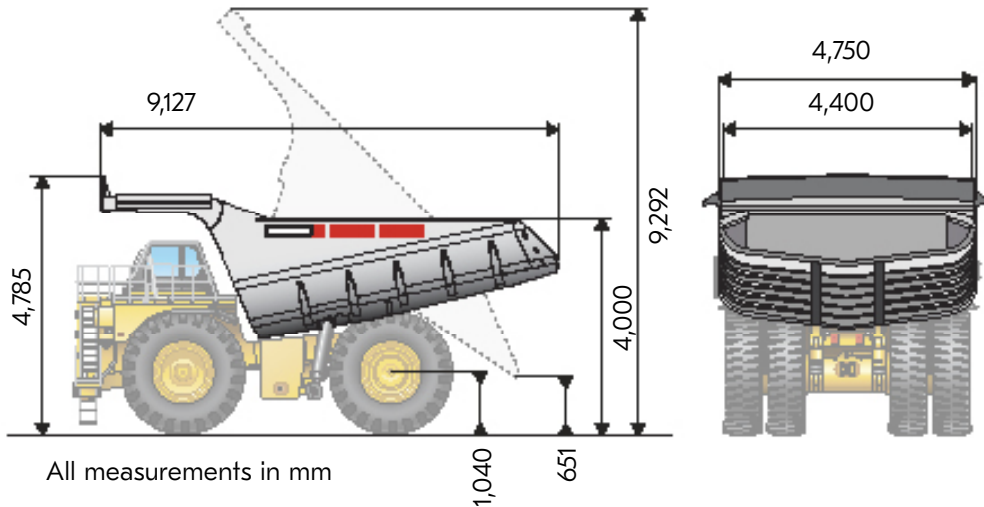
Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	82,100 kg	
Empty chassis weight	28,863 kg	
Steel body weight	6,300 kg	8,215 kg
Lining weight	2,500 kg	2,300 kg
Total body weight	8,800 kg	10,515 kg
Machine operating weight	35,663 kg	37,378 kg
Target payload	46,437 kg	44,722 kg

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		34,4 m ³	31,3 m ³
Density 1,600 kg/m ³	Load volume	29 m ³	28 m ³
	Fill factor	84 %	89 %
Density 1,800 kg/m ³	Load volume	25.8 m ³	24.8 m ³
	Fill factor	75 %	79 %

Metso's different lining configurations – capacities and weights			
			
Body weight	6,300 kg	6,300 kg	6,300 kg
Lining weight	2,500 kg	3,250 kg	3,850 kg
Floor thickness	100 mm	100 mm	100 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	75 mm
Body weight with lining	8,800 kg	9,550 kg	10,150 kg
SAE heap 2:1	34.4 m ³	33.8 m ³	33.4 m ³
Target payload	46,437 kg	45,687 kg	45,087 kg

All figures and images on this page are estimates. Changes and variations may occur.

Metso Truck Body for CAT 775G



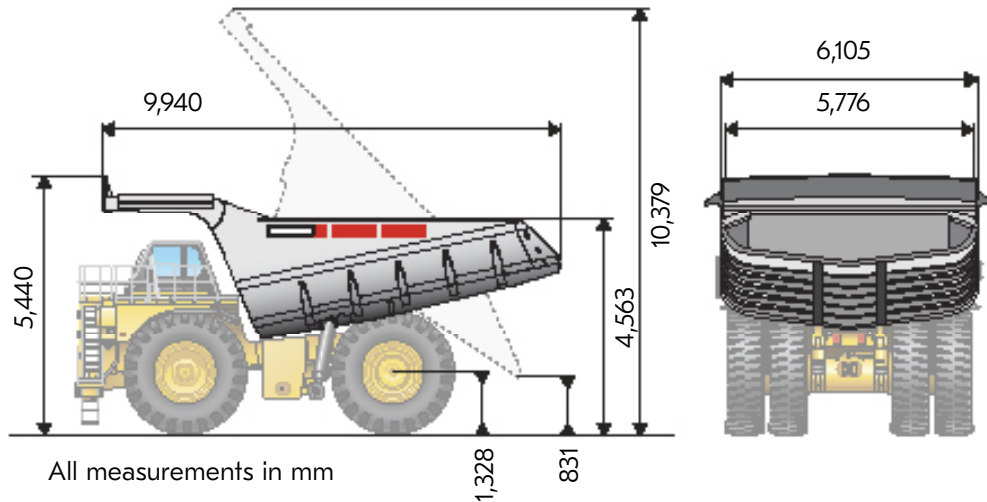
Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	111,811 kg	
Empty chassis weight	35,708 kg	
Steel body weight	7,850 kg	11,760 kg
Lining weight	4,165 kg	4,125 kg
Total body weight	12,015 kg	15,885 kg
Machine operating weight	47,723 kg	51,593 kg
Target payload	64,088 kg	60,218 kg

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		45.2 m ³	42.2 m ³
Density 1,600 kg/m ³	Load volume	40.1 m ³	37.6 m ³
	Fill factor	89 %	89 %
Density 1,800 kg/m ³	Load volume	35.6 m ³	33.5 m ³
	Fill factor	79 %	79 %

Metso's different lining configurations – capacities and weights			
Body weight	7,850 kg	7,850 kg	7,850 kg
Lining weight	4,165 kg	5,484 kg	6,175 kg
Floor thickness	125 mm	125 mm	125 mm
Side thickness	-	-	100 mm
Front thickness	-	100 mm	75 mm
Body weight with lining	12,015 kg	13,334 kg	14,025 kg
SAE heap 2:1	45.2 m ³	44.6 m ³	43.9 m ³
Target payload	64,088 kg	62,769 kg	62,078 kg

All figures and images on this page are estimates. Changes and variations may occur.


Metso Truck Body for CAT 777G



Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	164,654 kg	
Empty chassis weight	52,262 kg	
Steel body weight	10,340 kg	15,878 kg
Lining weight	7,952 kg	6,216 kg
Total body weight	18,292 kg	22,094 kg
Machine operating weight	70,554 kg	74,356 kg
Target payload	94,100 kg	90,298 kg

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		68.4 m ³ *	64.1 m ³
Density 1,600 kg/m ³	Load volume	58.8 m ³	56.4 m ³
	Fill factor	86 %	88 %
Density 1,800 kg/m ³	Load volume	52.3 m ³	50.2 m ³
	Fill factor	76 %	78 %

*Available in three different sizes: 64/68/76 m³

Metso's different lining configurations – capacities and weights			
			
Body weight	10,340 kg	10,340 kg	10,340 kg
Lining weight	5,224 kg	6,476 kg	7,952 kg
Floor thickness	100 mm	100 mm	125 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	100/75 mm
Body weight with lining	15,564 kg	16,816	18,292 kg
SAE heap 2:1	70 m ³	69.4 m ³	68.4 m ³
Target payload	96,828 kg	95,576 kg	94,100 kg

All figures and images on this page are estimates. Changes and variations may occur.

Mining Truck Bodies

Metso Truck Body for mining

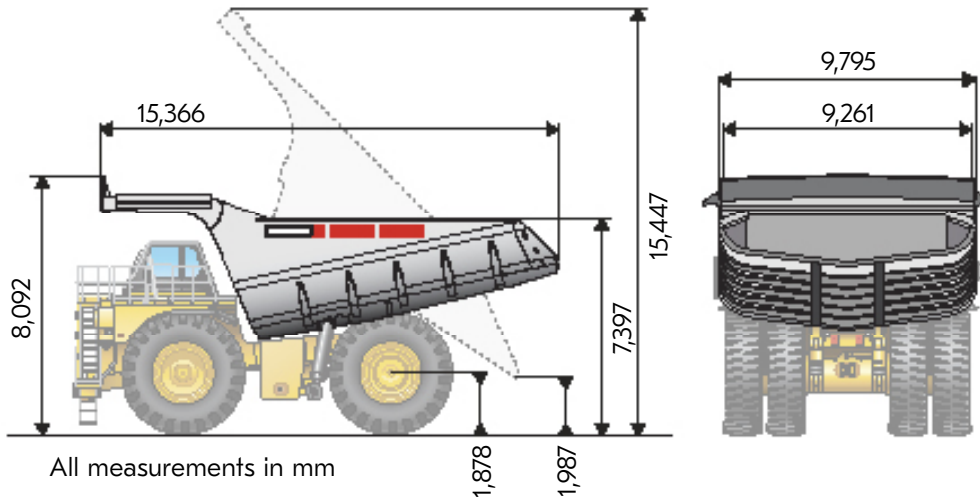
Decades of supplying the mining and aggregates industry with rubber wear lining solutions have given us valuable insights and the experience needed to manufacture the unique and tailor-made Metso Truck Body.

Metso Truck Body is a one-piece, light-weight hybrid haul truck body that combines the best of high-strength steel and rubber. It is engineered and customized for your specific operation, designed to lower hauling costs, maximize payload and offer a safer and improved working environment while being a more sustainable hauling solution.

Metso Truck Body is available for all major OEM trucks like CAT, Komatsu, Hitachi, Liebherr and Belaz.

Metso Truck Body for customer mine-specific design in operation		
Model	OEM truck	Ore-type
MTB 777	CAT 777	Iron/Granite
MTB 785	CAT 785	Iron
MTB 793	CAT 793	Copper/Coal
MTB 795	CAT 795	Copper
MTB 797	CAT 797	Copper
MTB 785	Komatsu HD 785	Silver/Gold
MTB 830	Komatsu 830	Copper
MTB 930	Komatsu 930	Copper
MTB 3500	Hitachi EH3500	Nickel
MTB 75131	Belaz 75131	Iron
MTB 75202	Belaz 75202	Copper
MTB 284	Liebherr T284	Copper

Metso Truck Body for CAT 797-F



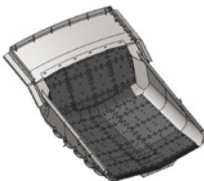

Example weight calculation		
	Truck Body	OEM
Gross vehicle weight	623,690 kg	
Empty chassis weight	215,217 kg	
Steel body weight	36,600 kg	42,000 kg*
Lining weight**	19,000 kg	20,800 kg*
Total body weight	55,600 kg	62,800 kg*
Machine operating weight	270,817 kg	278,017 kg*
Target payload	352,890 kg	345,673 kg*

Volume calculation			
		Truck Body	OEM
SAE heap 2:1		255 m ³	240 m ³ *
Density 1,600 kg/m ³	Load volume	220.6 m ³	216.0 m ³
	Fill factor	86 %	90 %*
Density 1,800 kg/m ³	Load volume	196.1 m ³	192.0 m ³ *
	Fill factor	77 %	80 %*

* Figures sourced from manufacturer's data sheets.

** Numbers are estimates for a hard rock application. Actual figures may vary based on specific conditions and requirements.

Metso's different lining configurations - capacities and weights

			
Body weight	36,600 kg	36,600 kg	36,600 kg
Lining weight	12,500 kg	16,200 kg	21,000 kg
Floor thickness	125 mm	125 mm	125 mm
Side thickness	-	-	75 mm
Front thickness	-	75 mm	100 mm
Body weight with lining	49,100 kg	52,800 kg	55,600 kg
SAE heap 2:1	257 m ³	256 m ³	255 m ³
Target payload	359,390 kg	355,690 kg	352,890 kg

All figures and images on this page are estimates. Changes and variations may occur.

Increased payload

The energy-absorbing characteristics of the rubber lining allows for the construction of a lighter and optimized truck body and lowers OPEX by reducing maintenance and increasing payload.



One-piece solution

The Metso Truck Body is a custom-built, one-piece unit that is optimized to meet your preferences. Combining a high-strength steel structure with the characteristics of the rubber allows us to shave off unnecessary heavy steel in the structure, since the rubber takes on the impact and wear from the hauling.

Less carryback

To increase performance, even in difficult applications with significant carryback problems, we offer solutions with flexible linings, low-friction materials or combinations of these. This unique functionality maximizes the hauling capabilities of your trucks.

Case: Leading European limestone company

More payload, less fuel

Background

The customer had a nominal payload of 60 tons and aimed to increase the actual payload from 58 tons to as much as possible by improving the loading cycle.

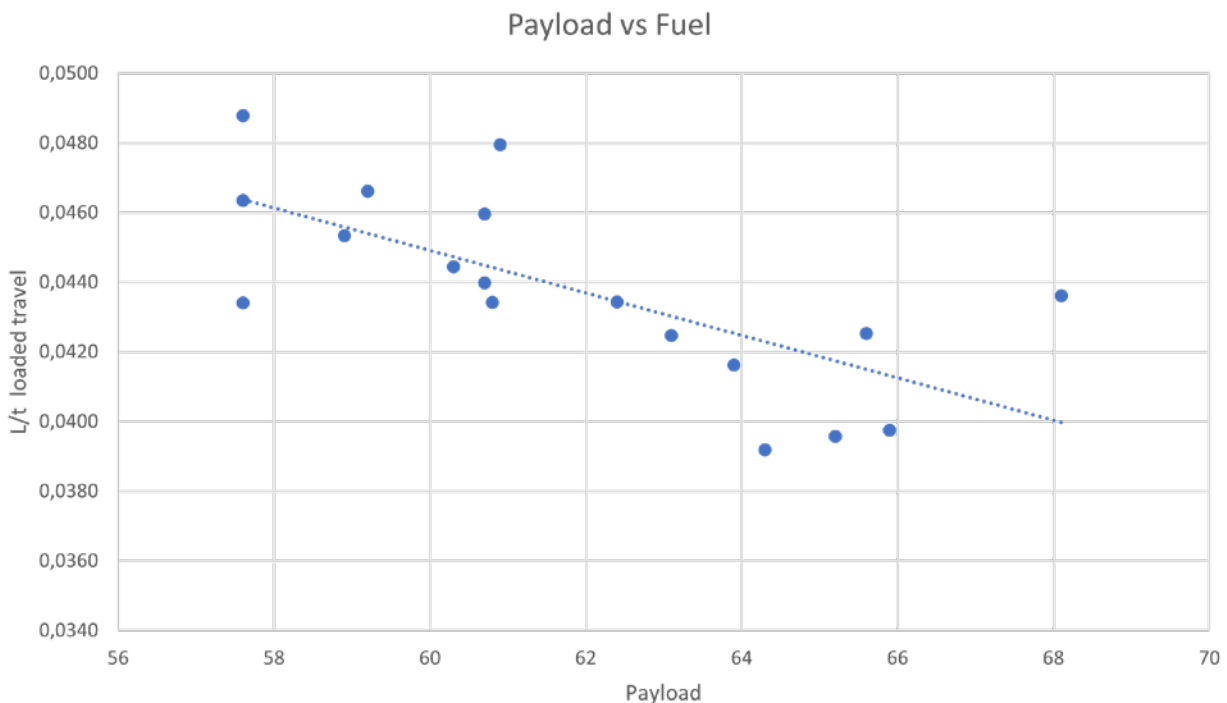
Solution

Customer installed a Metso Truck Body with 125mm rubber lining on their Komatsu HD605-8.

Results

As the drivers and wheel loader operators started to utilize the additional payload and volume, productivity went from 58 to 66 tons.

- \approx 11% improvement on l/t when loaded travel
- \approx 15% on total fuel l/t
- \approx 16% on total l/tkm
- Reduction in noise and vibration levels
- Reduced CO₂ emissions



Actual payload was tracked with the onboard weight system

Key metrics

Distance: 1.9 km

Duration: 16 min

Avg. fuel total: 24 l/h

Avg. fuel loaded travel: 58 l/h



Case: Terrafame, Sotkamo Mine, Finland

Significant noise reduction

Background

The Terrafame multi-metal mine has been among the first mines in the world to test the Metso Outotec Truck Body. Mining abrasive ore means that wear protection is high on the agenda in every part of the process as well as the need to increase payload and improve driver comfort.

"The capacity and the durability of the body match Metso Outotec's promises. Higher payload and driver comfort are both top priorities for us. The feedback from the drivers has been very positive. Despite the higher 325-tonne total load, the elevated rear flange keeps the boulders onboard."

Esa-Tapani Leinonen

Head of Mining Department
Terrafame Sotkamo Mine

Solution

The Metso Outotec Truck Body was installed on their oldest haul truck, a Hitachi EH3500, in December 2018.

Results

- 9 tonnes more payload
- Improved hauling efficiency
- Significant reduction in noise & vibration levels
- Reduced CO2 emissions

"The new rubber-lined truck body has indeed cut noise significantly. I would definitely like to see a rubber-lined body installed on the truck number 10 that I usually drive."

Kristiina Karjalainen

Haul truck driver
Terrafame Sotkamo Mine

This study was written prior to the name change from Metso Outotec to Metso.







Reduced fuel consumption and CO₂ emissions

Metso truck bodies offer an unparalleled advantage in terms of weight reduction. A lightweight truck body translates directly into reduced fuel consumption per transported ton of material. This has a profound impact on both CO₂ emissions and operational costs.

Lighter weight, greater efficiency

There is no other truck body on the market that can compare with Metso Truck Body when it comes to lightweight design and long lifetime. The reduced weight of our truck bodies means that less energy is required to transport materials, resulting in lower fuel consumption and reduced CO₂ emissions per ton of material moved.

Operational cost savings

The lower weight combined with the increased payload equals lower fuel consumption per hauled ton. Lower fuel consumption not only benefits the environment but also contributes to significant operational cost savings. Operators can achieve higher levels of productivity and efficiency while consuming less fuel, thereby reducing their carbon footprint and operational expenses simultaneously.

Reduced maintenance

The rubber lining absorbs most of the vibrations and impact during loading and unloading. Hence less stress is conveyed to the truck itself. The rubber lining lasts substantially longer than a conventional steel lining. In combination with the modular construction, this means fewer and quicker maintenance stops. Keeping downtime to a minimum is essential. Maintenance stops are very costly, so every minute less spent in the repair shop equals a lower OPEX and, ultimately, a higher revenue.

Modular construction

The Metso Truck Body is developed from years of on-site experience in the toughest conditions and is highly resistant to wear and impact.

Our truck body lining consists of a modular system of separate rubber elements made of different polymer compounds. This allows added strengthening of the impact zones and quick and easy change-out of the independent rubber elements, unlike steel-lined truck boxes where you need to exchange the whole the steel lining through time-consuming heavy welding or air-arcing.

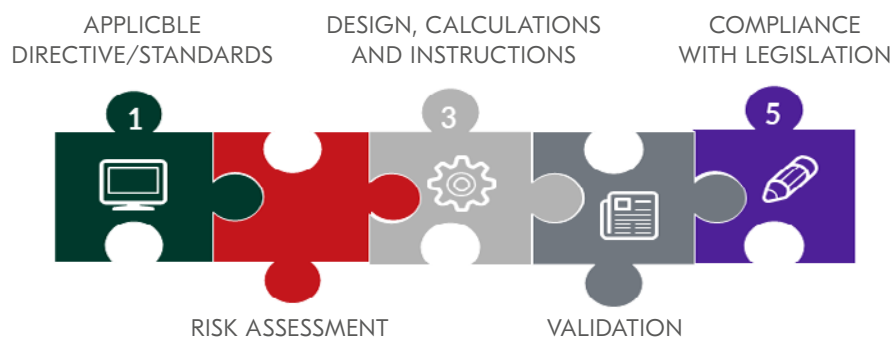
OEM compliance

Metso understands the importance of seamless and reliable cooperation between a third-party truck body manufacturer and the OEM chassis provider. Our truck bodies are fully compliant with the original machinery directive and approved to operate with CE-certified machines. By following Annex IIB of the Machinery Directive 2006/42/EC, we ensure that our truck bodies match the OEM chassis specifications and performance.

Compliance and warranties upheld

According to Annex IIB, the Metso Truck Body not considered a major change. It is considered as a change of component, similar to changing your car tires to another brand. Hence it does not impact the CE marking of the vehicle.

Metso bodies are checked and approved by the original equipment manufacturer through a "body work sheet" that ensures that the fit and weight comply with the OEM manufacturer's recommendations. When the truck bodies are utilized in accordance with their designated purpose, as specified by the "Intended use", the chassis warranties are applicable.



Retrofitting — a safe solution

Metso's retrofitting of a dumper to a Metso Truck Body is carried out in compliance with the Machinery Directive 2006/42/EC and "EN 474-6 Earth-moving machinery, Safety — Part 6 requirements for dumpers" standard.

Metso has carried out the following:

- Customer-adapted questionnaires for each customer
- Risk assessment according to EN ISO 12100
- Customized strength calculations for each customer
- Customized design for each customer
- Instructions for installation and maintenance
- Analysis to ensure correct center of gravity and weight distribution



Accessories

Metso truck ladder for haul trucks

The flexible ladder that folds away in case of minor contact

- Rubber stringer with modular non-slip steps
- Allows easy machine access
- No hydraulics or electricity required equals low maintenance
- Simple and quick to install
- A cost-efficient alternative

Off-road haul trucks operate in harsh environments where it's easy to hit an occasional rock and damage a standard OEM aluminum access ladder. The Metso truck ladders are made out of combination of rubber and aluminum, so they are flexible and more suited for the working conditions.

Metso cable protection crossover system

A modular system that allows customized lengths to adapt to local conditions

- Allows cables to be driven over without damage
- Assembles quickly to the desired length
- Ships on a standard pallet/s for easy transport

Open pit mines operate with electric-powered loading equipment. It's essential to protect the power cable to ensure it's not damaged at any moment to prevent any power supply interruptions.

Metso's cable crossover systems protect the cable system and allow service and heavy-haulage trucks to drive over without damaging the cables. The modular system allows customized lengths to adapt to local conditions and are easy to move, utilizing the built-in move tool.

Cable crossover system	
Standard modular length	1 m (40")
Standard width	1.05 m (3'5")
Standard channel width	76 mm (3")
Weight of one channel	115 kg/m (77 lb/ft)

