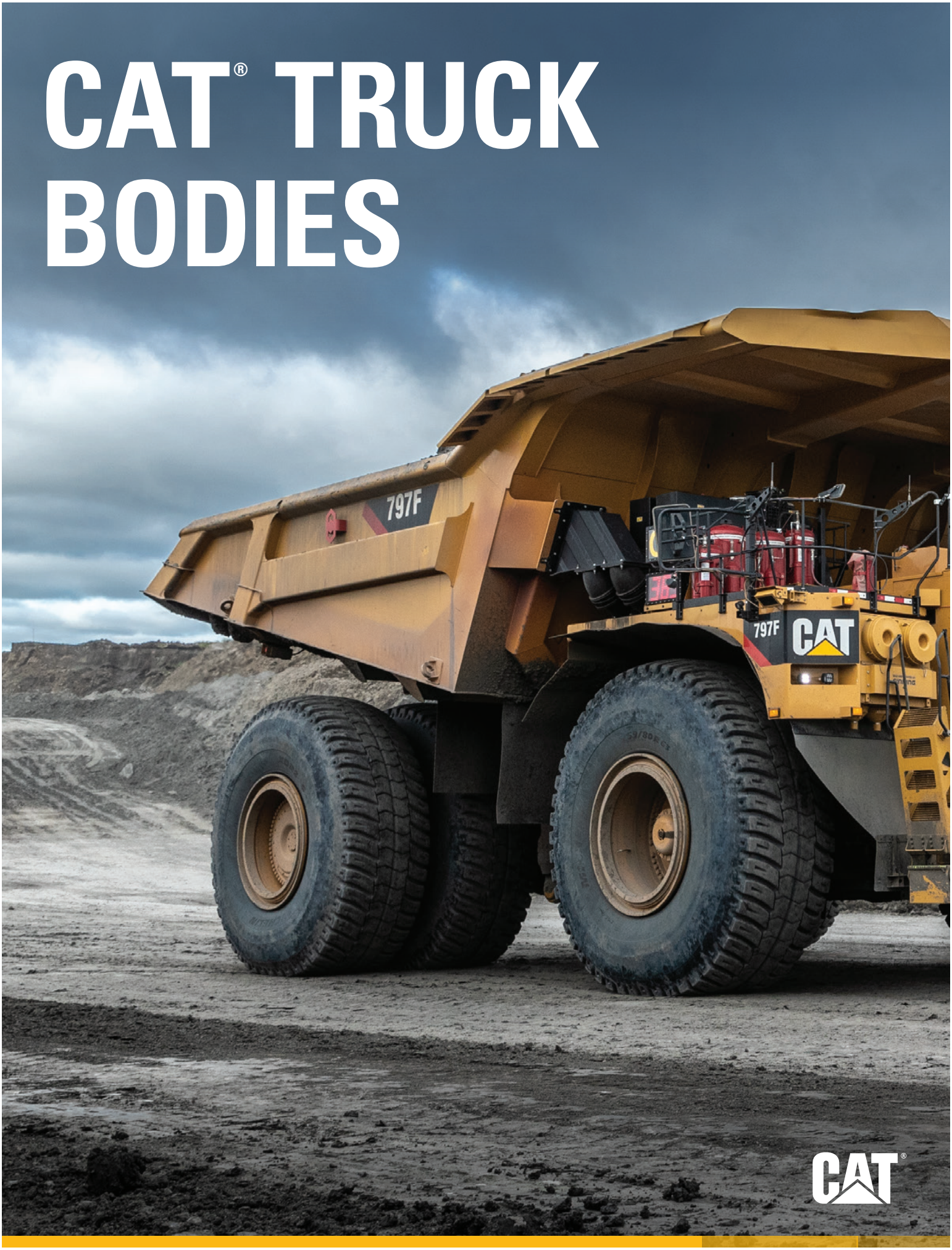
CAT® TRUCK BODIES



CAT® BODIES

DELIVERING A BETTER BOTTOM LINE

Matching the truck body to the application is a critical part of achieving the best value from your Cat truck. Integral to the truck, Cat bodies are designed to fit with the chassis and work as part of the truck system. They are sized to meet the payload requirements without compromise to vehicle balance, braking or control.

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WHY CAT BODIES?

Caterpillar offers the widest variety of OEM designed, application-specific truck body solutions in the industry. Cat bodies consistently meet target payload and outperform competitive bodies in scale studies. They are designed and analyzed as an integral part of the entire vehicle system, helping to ensure you achieve maximum chassis life. From the design to the materials, manufacturing to shipping, the entire process meets Cat standards of quality and control.

THE CATERPILLAR ADVANTAGE

VERTICAL INTEGRATION

We follow a dynamic approach to engineering — treating the body as part of a system rather than a static structure. A static structure designed in isolation has the propensity to cause problems to other parts of the system. Cat bodies are designed along with the chassis. We use a sophisticated proprietary analysis software to simulate a virtual haul cycle, followed by validation in the field.

To mitigate carryback, we pump exhaust through the body to heat the material, causing it to release. We test these tactics along with the engine to ensure the exhaust flows freely and does not affect the performance of the truck.

VIRTUAL VALIDATION

Caterpillar uses a virtual product environment to ensure every aspect of the system works together before releasing the body to the field. Caterpillar engineers use proprietary dynamic analysis tools to understand the true system interactions. This complete system knowledge allows the engineers to make decisions that will result in optimal machine component life and value for the end user.

PROVEN IN THE FIELD

We operate a fully functional proving ground where bodies are instrumented and tested in mining applications with the actual loading tools, on haul roads and in extreme environments that can be found on mine sites.

CONTINUOUS INNOVATION

We are always investing in research to develop new lightweight and specialty-application-focused bodies that are validated by our virtual analysis tool.

LOCALIZED MANUFACTURING AND SALES

We're committed to meeting the needs of our customers around the world and are actively growing our manufacturing and sales footprint to support them. Localized manufacturing reduces transportation and onsite assembly costs while improving delivery lead times.

HIGH-QUALITY STEEL

All Cat bodies are manufactured using the highest quality sheet steel. Every gusset, bracket, plate and sub-assembly in the body is manufactured by Caterpillar.

HIGH-QUALITY FACILITIES

Our investment in tooling, equipment, facilities and expertise results in the most comprehensive body manufacturing facilities in the world.

EXPERIENCED TEAM

Our truck body team has more than 35 years of design experience working on Cat bodies, and more than 25 years of lightweight body experience. The team as a whole has 160+ years of experience in this field.

PROVEN PRODUCTS

More than 5,000 MSD bodies and over 300 HP bodies are working in the field today.

CUSTOMIZABLE SOLUTIONS

Caterpillar offers truck bodies for every application. Liners offer flexibility for unique and extreme conditions, while the ability to vary the base plate allows them to handle the harshest applications.

Cat truck bodies are even customizable down to the paint color. Past paint colors have supported our customers' awareness campaigns for issues such as breast cancer and prostate cancer.

SAFETY FOCUS

We know that safety is important to our customers, so we look for ways we can support their initiatives with our truck body designs. All bodies come with strategically placed tie-offs for working at heights.

We also follow a corporate safety initiative to maintain safe working conditions in our manufacturing facilities, which are clean, modern and updated to protect our employees.

FLEXIBLE SHIPPING OPTIONS

Caterpillar offers a variety of flexible shipping options to optimize the balance of shipping cost and local assembly requirements. Shipping options include one-piece (for select models), standard multi-piece (4-6 sections), and partial assembly. Shipping costs and restrictions vary by region so local considerations must be made to determine the best option.

UNPARALLELED SUPPORT

Caterpillar offers unparalleled product support and performance validation through our Cat Mining organization and global Cat dealer network. Cat dealers are located in every mining region in the world, providing boots-on-the-ground support no matter how remote the location. Together with our dealers, we are committed to delivering the Cat brand promise.

CRITICAL BODY DESIGN FACTORS

FRAGMENTATION

Blasting has a significant impact on the life of a truck body. The larger the material the more severe its impact. The target zone is the front two-thirds loading area of the body. Central zones will often be thicker than later zones to optimize liner life with less weight impact. Special impact packages include reinforced structure between ribs and/or thicker base plates, which offer increased impact absorption.

ABRASION

Abrasion rates can be determined by the typical wear liner life and/or by bucket tip life. Severe abrasion can also influence liner decisions in the middle zone, although wear rates will be highest at the rear of the body. Options include:

+ Smooth plate for cohesive materials
+ Rock box for dry and non-cohesive materials
+ Tumbler bars for larger rocks
+ Chromium Carbide for severe abrasion

COHESION

Material cohesion is a concern when material is sticky and doesn't release from the truck body. The material left inside the body is referred to as carryback. In addition to being extremely inefficient, carryback makes it difficult to manage equipment and results in inadvertent abuse of the machine. Accuracy of the Vehicle Information Management System (VIMS) can be erroneous due to the additional weight. Depending on where you are in the calibration process, the truck is either recording the carryback on every load—resulting in inflated production numbers—or, worse yet, ignoring the information and causing the truck to be overloaded. Carryback can also increase fuel burn and drive downtime for cleaning.

Options to address cohesion include exhaust body heat, liner design (smooth plate), and body geometry changes such as stop sign plates and curved transition plates.

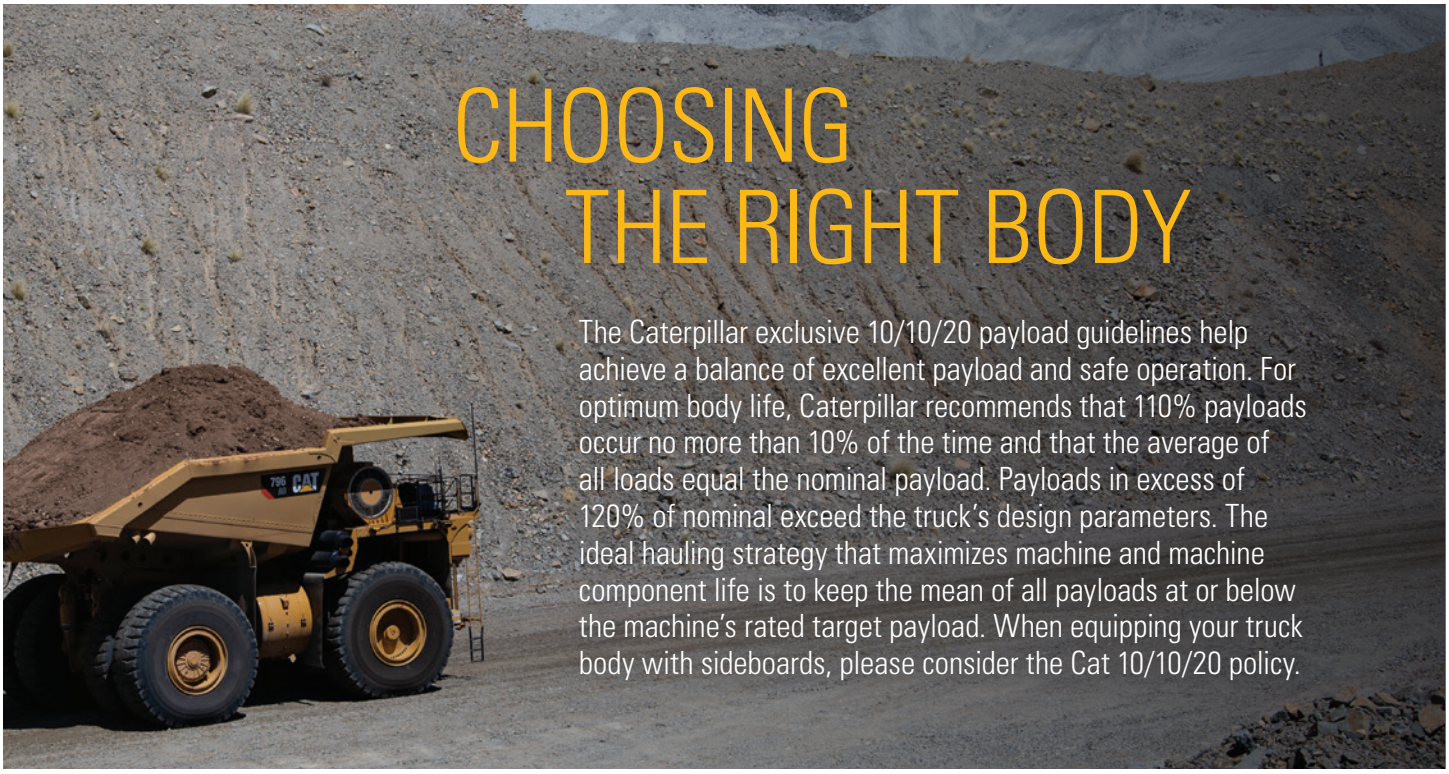
CAT BODIES ARE **THE IDEAL MATCH** FOR CAT TRUCKS

They are designed to fit with the chassis and work as part of the truck system. They consistently meet payload and outperform competitive bodies in head-to-head scales studies.

RISKS OF SELECTING A THIRD-PARTY BODY

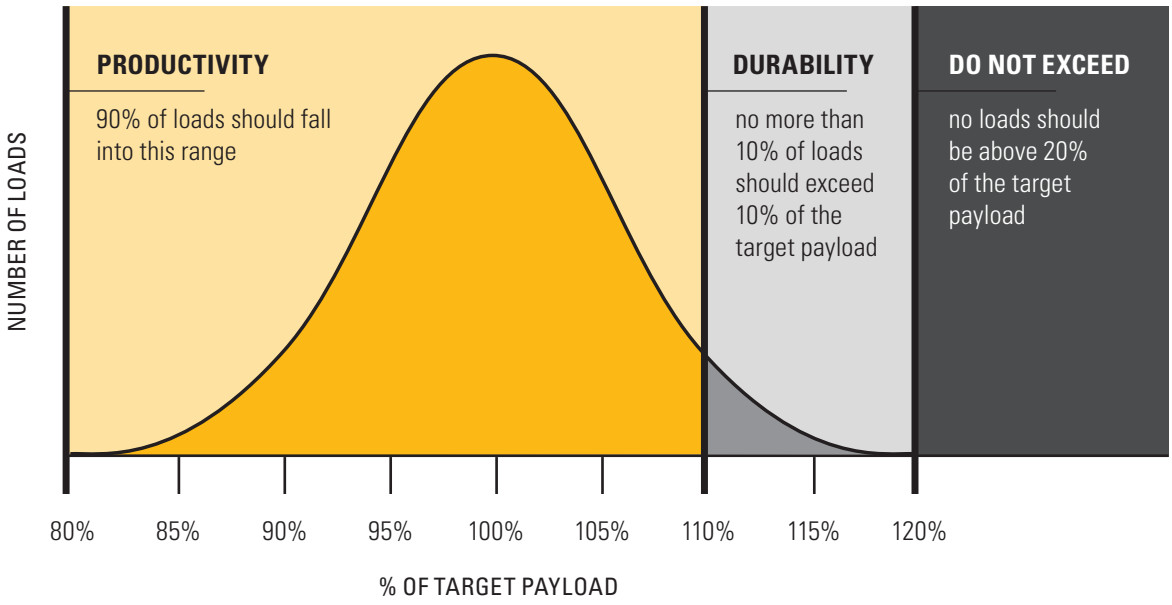
There are a number of potential risks to evaluate when considering a third-party body.

+ Lower payload.
    + What is the actual competitive body weight?
    + Is it ready to go to work without liners?
+ Improper distribution of axle splits and structural load path.
+ Negative impact on steering and suspension, frame, lower powertrain, light fabrications, pinned joints and tire life.
+ Unbalanced machine weight splits, which can lead to tire and component life decreases as well as dumping problems.
+ Increased machine downtime for repairs.
+ Inaccurate VIMS readings.
+ Machine overload.
+ Excessive debris collected on fuel tank, cab outriggers and other components. On a 793 size machine, 2.5 tonnes (2.75 tons) of extra debris corresponds to approximately 1% additional fuel consumption.
+ Excessive engine exhaust back pressure.
+ Body does not fit chassis. Competitive bodies with different connection points and stiffness characteristics can increase the risk of lower chassis life.
+ Interference with fuel tank, hoses, tires or other attachments.
+ Damage to platforms, handrails or mirrors due to inadequate overhead protection.
+ Liners or attachments failing and damaging crusher.
+ Body retention cable may not be ISO13333 certified.



CHOOSING THE RIGHT BODY

The Caterpillar exclusive 10/10/20 payload guidelines help achieve a balance of excellent payload and safe operation. For optimum body life, Caterpillar recommends that 110% payloads occur no more than 10% of the time and that the average of all loads equal the nominal payload. Payloads in excess of 120% of nominal exceed the truck's design parameters. The ideal hauling strategy that maximizes machine and machine component life is to keep the mean of all payloads at or below the machine's rated target payload. When equipping your truck body with sideboards, please consider the Cat 10/10/20 policy.



TARGET PAYLOAD: Lower Body Weight ⟶ Higher Payload

CALCULATION: GMW – Chassis Weight – Body Weight = Target Payload

CAPABLE PAYLOAD: Correct Body Sizing ⟶ Ideal Payload Distribution (10/20/20)

CALCULATION: Density x Volume x Fill Factor = Capable Payload

"MAP" TRUCK BODY SPECIFICATION PROCESS

With the MAP Process, input from miners is considered in the design configuration. Body configuration is aligned with the application and maintenance strategy.

Customers work with dealerships and regional teams to complete mine site profile forms. A clear understanding of customer expectations positions us to deliver the right body for the specific application.

MATERIAL

+ Mineral
+ Density
+ Fragmentation
+ Abrasiveness
+ Cohesion
+ Angle of Repose

APPLICATION

+ Loading Tool
+ % Overburden vs Ore
+ Haul Length
+ Haul Road Condition / Grade
+ Dump Clearance
+ Shop Bay Constraints
+ Established Mine or Greenfield

PREFERENCE

+ Specific Features
+ Historical Information
+ Remaining Chassis Life
+ Payload & Durability
+ Life Expectation
+ Maintenance Strategy

HIGH PERFORMANCE BODY

FOR ULTRA-CLASS MECHANICAL-DRIVE TRUCKS

When you equip your truck with a Cat High Performance (HP) body, you'll experience the benefits of a higher payload thanks to a weight reduction of 2.0-5.0 tonnes (2.2-5.5 tons) or more. The HP body features a lightweight, simplified and durable design that provides complete front machine coverage and extended overhead protection. The HP body features robust top rail geometry with internal stiffeners and a high-visibility load placement indicator. Patented floating bolsters and spring plates improve overall durability by avoiding welds in high stress areas. In addition, the body requires only minimal liner coverage due to thicker and harder base plates. Curved front/side transitions minimize carryback, and a kick-up at the tail provides material retention, improved dump clearance and a shorter overall body length, resulting in a wider structure.

+ Increased payload
+ Reduced fuel consumption
+ Optimized payload splits
+ Extended tire life and front wheel life
+ Less spillage
+ Minimized carryback
+ Safer operation

PROVEN IN THE FIELD

A mine in Chile with one HP body operating today has reported significant gains:

+ An additional 5 tonnes hauled per day
+ About 1 km/h increase in speed, making it the fastest truck in the fleet

If the mine's entire truck fleet was equipped with the HP body, the productivity gain would add up to 18K tonnes/day.

A cost per ton analysis against a traditional body showed a nearly 4% improvement in cost per tonne—equivalent to the elimination of one engine replacement.

A trial of the HP body at a U.S. copper mine found reductions in both maintenance and downtime costs. Due to higher dovetail height from the ground (5 feet vs. 3.5 feet), there is no contact with berms or crusher pockets, which reduces the number of cracks as well as damage sustained to dovetails. This mine has purchased over 200 HP bodies since 2017.

HP-XL BODY

This version of the standard HP body features an extended length floor, designed to neutralize extreme forward bias loading applications. Increased base plate thickness is concentrated on the loading area for efficient impact resistance. It's also narrower for single piece shipments into more restrictive areas.

HIGH-EFFICIENCY DUMP BODY

FOR CAT ELECTRIC-DRIVE TRUCKS

The high-efficiency (HE) dump body is lightweight, simplified and durable. Featuring a unique, primarily bolsterless design, the HE body provides long life while minimizing weight for increased payload. The HE body is sized and configured to meet the specific needs of the mine, dictated by fragmentation, abrasion, cohesion and the loading tool.

+ The structural perimeter beam — along with curved floor, front wall and canopy — provides the natural strength and stiffness required to successfully operate in diverse mining applications.
+ Higher-strength base plates allow for a minimal wear package, resulting in lower weight.
+ The patented designs of the floating bolster and spring plate improve overall durability by allowing structural flexibility and avoiding welds in high stress areas.

PROVEN IN THE FIELD

Nearly 200 HE bodies have been produced to date with close to 4 million accumulated hours of operation.

These bodies are demonstrating success in all major mining environments—coal overburden, copper, iron ore and oil sands. They feature numerous patented design features and their two-piece shipping configuration reduces field weld inches. Benefits include:

+ Fuel consumption reduction
+ Cycle time reduction
+ Payload increase
+ Tire life increase
+ Spillage reduction
+ Improved durability

TRADITIONAL BODY OPTIONS

Designed to work with the Cat frame for superior structural performance

MINE SPECIFIC BODY (MSD II)

For mature mines with good operational and maintenance practices, the lighter weight MSD II body is available in several sizes. It is a customer / site specific body that is designed to maximize performance.

+ Lightweight base body with configurable liner zones to optimize productivity
+ Analyzed and tested internal and external gussets optimize stress distribution
+ Rearward taper assists with material ejection
+ Optional application-specific body liners, available in a variety of thicknesses and locations
+ Built-in carryback reduction features (front wall curved transition and corner pop-out plates)
+ Available in various capacities to accommodate worldwide material densities
+ Durable base plates, top rail, understructure and sidewall
+ Exhaust heat ready
+ Full front machine coverage (guards and canopy)
+ Back compatible with older truck models

COMBINATION BODY

This is a multi-purpose, high volume body for light density, well fragmented material. Based on the dual slope design for applications that require a flexible body to haul light ore (such as coal) and light, well fragmented overburden.

+ Robust enough to handle overburden when equipped with a site-specific liner package
+ Provides the increased volume required for coal hauling applications
+ Body heat exhaust is available as an option to minimize material carryback

OIL SANDS BODY

This body is specifically designed for use in challenging Canadian Oil Sands applications.

GATELESS COAL BODY

This specialized high-volume body, available in several sizes, is targeted at dedicated coal haulage applications with minimal impact. This body builds on the proven design of the MSDII understructure. Robust structural elements unite with geometric and steel efficiencies to create a durable high-volume truck body. Eliminating the tailgate reduces damage and downtime, reduces additional weight and lowers maintenance costs.

+ Attain target payload in coal
+ Maintain proper center of gravity
+ Maximize payload (less weight than other modified body options – i.e. tailgates)
+ Minimize maintenance (eliminates cost and downtime associated with tailgates)

DUAL SLOPE BODY

The original standard body, the Dual Slope body provides excellent load retention, maintains a low center of gravity with optimum load distribution, reduces shock loading and is available in lined and unlined configurations.

+ With 450 BHN base plate for improved impact and wear
+ Standard Dual Slope base body weight 23 538 kg (51,892 lb)
+ Standard Dual Slope Volume (SAE 2:1) 78 m^3 (102 yd^3)

CUSTOM BODY OPTIONS

A variety of options including tail extensions, sideboards, tumble bars, rock boxes and rock shedders are available to maintain rated payload, reduce spillage and improve hauling efficiencies.

CURRENT BODY OFFERINGS

	785C/D	785	789	793C/D/F	793F T4	794/T4	795F AC	796 AC	798 AC	797F	797F T4
DUAL SLOPE	■	■	■	D only							
X	■		■	■	TE required						
MSD	■	■	■	■			■			Phase out	
HP			■	■	■		HP (Heavy duty)			■	■
HE						■		■	■		
COAL	■		■	■	■		■				
SPECIALTY	Combination	Combination	Combination					Combination	Oil Sands HP	Oil Sands HP-XL	Oil Sands HP-XL

+ Body offerings limited on Tier 4 machines to optimize fore-aft weight splits
+ All new body designs are backwards compatible (e.g., 785G bodies fit older models)
+ 793 T4 Standard body will be HP, but X body + Tail Extension for sites needing heat
+ 797 T4 Oil Sands body for customers needing body heat, otherwise HP body will be used
+ 794 / 795 T4 HE body will be sole option for these trucks

TRUCK BODIES