

CAT® HYDRAULIC MINING SHOVEL

BUCKETS



Coal, Light Rock, Standard Rock,
Heavy Rock, Heavy Rock and Ore





CAT® BUCKETS

THE SOLUTION THAT PAYS. LOAD AFTER LOAD.

Matching the shovel bucket to the application is a critical part of achieving the best value from your Cat® Hydraulic Mining Shovel. Cat buckets are designed to maximize durability and productivity. Integral to the machine, they're designed to fit with the shovel structure and work as part of a system. With a wide variety of sizes and material densities, we can offer the right bucket ideally matched to your shovel and your application. When combined with the right Ground Engaging Tools (GET) and wear components, Cat buckets can help you achieve the optimal payload, bucket after bucket.



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 - + Coal
 - + Light Rock
 - + Standard Rock
 - + Heavy Rock
 - + Heavy Rock & Ore
-

Choosing the Right Bucket

Ground Engaging Tools and
Wear Components



WHY CAT BUCKETS?

Caterpillar offers the widest variety of OEM designed, application-specific face shovel and backhoe bucket solutions in the industry. Cat Hydraulic Mining Shovel buckets are designed to meet target payload in various applications. They are designed and analyzed as an integral part of the entire vehicle system to help you achieve productivity and the lowest cost per ton. From the design to the materials to manufacturing and installation, the entire process meets Cat standards of quality and control.

Cat buckets are optimized for Cat machines and designed for each individual model, using accurate specifications, including machine force, to understand exactly how to size the buckets and deliver the ideal payload.

Bucket wear surfaces are armored with replaceable wear materials to extend the life of your bucket. And Cat buckets are easy to rebuild, with all wear components available as service parts that you can get directly from your Cat dealer.



INTEGRATED LOADING SYSTEM

We follow a dynamic approach to engineering — treating the bucket 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 buckets are designed along with the shovel structure, boom and stick.

VIRTUAL VALIDATION

Bucket design parameters are chosen to provide the best material flow. 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. Virtual validation also increases bucket durability and performance.

PROVEN IN THE FIELD

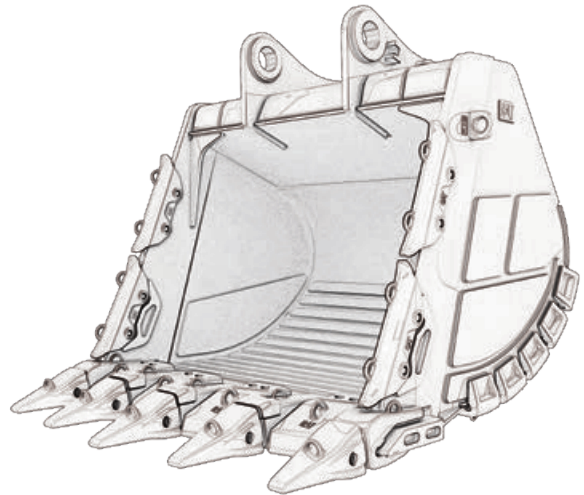
We operate a fully functional proving ground where buckets are instrumented and tested in mining applications with trucks, working in extreme environments that can be found on mine sites.

CONTINUOUS INNOVATION

We are always investing in research to improve our existing buckets and develop new ones that meet the needs of our customers.

HIGH-QUALITY MANUFACTURING

All Cat buckets are made with the highest quality materials, with every piece designed, manufactured and tested to meet our high standards. Our investment in tooling, equipment, facilities and expertise results in the most comprehensive bucket manufacturing facilities in the world.



CUSTOMIZABLE SOLUTIONS

Caterpillar offers buckets for every application. A variety of liner packages offer flexibility for unique and extreme conditions. And when combined with Cat GET and wear components, they deliver optimal payload.

EXPERIENCED TEAM

Our shovel bucket team has decades of experience working on Cat buckets.

SAFETY FOCUS

We know that safety is important to our customers, so we look for ways we can support their initiatives with our bucket designs. 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.

UNPARALLELED SUPPORT

Caterpillar offers unparalleled product support and performance validation through our global shovel team, 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 BUCKET DESIGN FACTORS

FRAGMENTATION

Blasting has a significant impact on the life of a shovel bucket. The larger the material the more severe its impact. The addition of guarding where it is needed provides optimum bucket protection and extends bucket life.

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. A High Abrasion liner package extends bucket life in very dense materials and aggressive conditions that require maximum resistance to wear.

COHESION

Material cohesion is a concern when material is sticky and doesn't release from the bucket. Leaving material inside the bucket is extremely inefficient and can increase fuel burn, drive downtime for cleaning, and lead to inadvertent abuse of the machine. Options to address cohesion include liner design (smooth plate), and bucket geometry changes.

CAT HYDRAULIC MINING SHOVEL BUCKETS ARE THE IDEAL MATCH FOR CAT SHOVELS

They are designed to fit with the machine and work as part of the loading system. Cat Hydraulic Mining Shovel buckets are designed to meet target payload in various applications.

ADVANTAGE OF SELECTING AN OEM-DESIGNED BUCKET

There are a number of reasons why the OEM-designed bucket is the right choice, and there can be risks to evaluate when considering a third-party bucket.

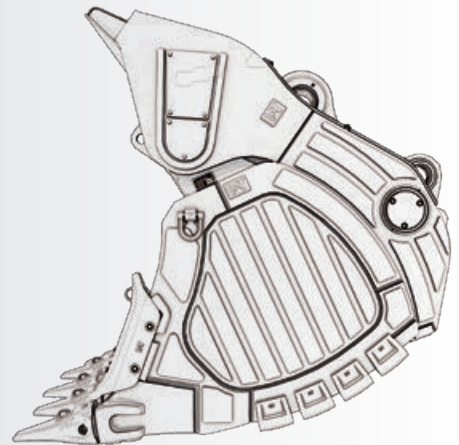
- + Cat buckets are designed to match ideally with a specific model. Off-the-shelf buckets may not be optimized for machine weight and digging forces to deliver optimized payload.
- + Cat shovel capacities are calculated using Cat buckets, with correct weights and defined ISO standard heap ratios. The actual competitive bucket weight may be an unknown, and the addition of liners could further impact that potential discrepancy.
- + Cat buckets are ideally matched to ensure they don't interfere with the fuel tank, hoses or other attachments.
- + Cat buckets are designed to payload policy. In many applications, the bucket payload can change dynamically with varying material density. In addition, there can be changes to the bucket weight due to Ground Engaging Tools (GET) or wear protection. For these reasons, the payload management policy focuses on the Rated Payload of each bucket. This approach helps to ensure machines are used within their specified limits, while being productive and durable.
- + Selecting a third-party bucket could increase machine downtime for repairs.
- + Cat buckets help ensure accurate VIMS readings.
- + If the bucket does not correctly fit the shovel structure, with different connection points and stiffness characteristics, the structure could experience a decrease in life.





FACE SHOVEL BUCKETS

Caterpillar offers Hydraulic Mining Shovel face shovel buckets for the Cat 6030, 6040 and 6060 Productivity Class that are a combination of the front clam and backwall piece. The bucket's capacity is determined by the size and type of front clam selected.

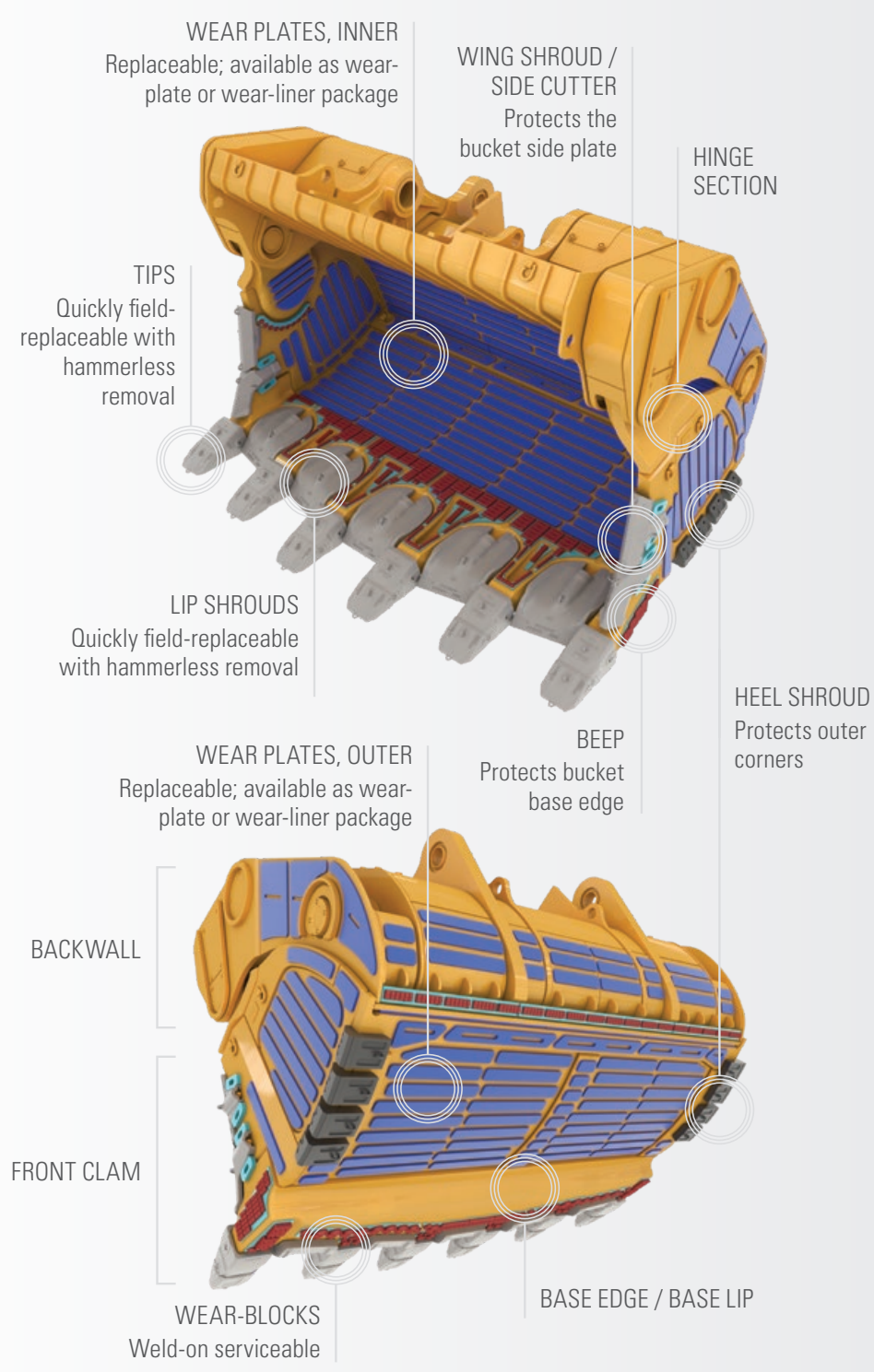


PAYLOAD

Face shovel bucket capacities are calculated according to ISO 7546 standard 2:1 heap ratio. Factors that may affect bucket size and fill include:

- + Specific weight / material density
- + Abrasiveness (degree of hard-facing)
- + Rock or grain size
- + Humidity
- + Penetration resistance
- + Operator technique
- + Operating conditions (e.g., bench height)

FACE SHOVEL CONFIGURATION



FACE SHOVEL

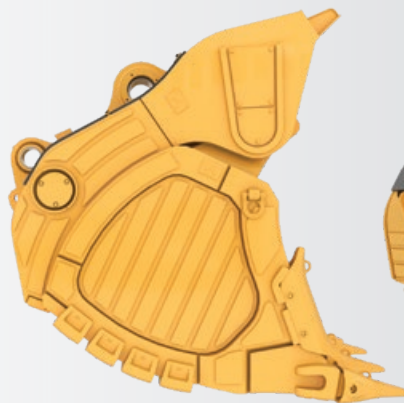
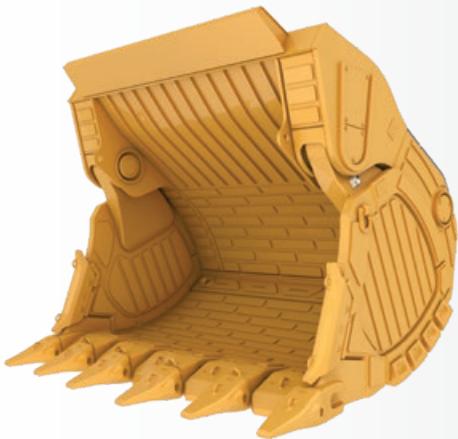
STANDARD ROCK

Standard Rock bucket for use in medium-density (up to 1.8 t/m³) material

RANGE:

9.5 m³ (12.4 yd³) —
34.0 m³ (44.5 yd³)

- + Alloy Quenched & Tempered (Q&T) wear plates for maximum durability in high-impact conditions
- + Has wear protection for the leading edges as well as heel-shrouds
- + Wear plates usually Q&T in the shape of either narrow plates or large liners, to help with sticky material



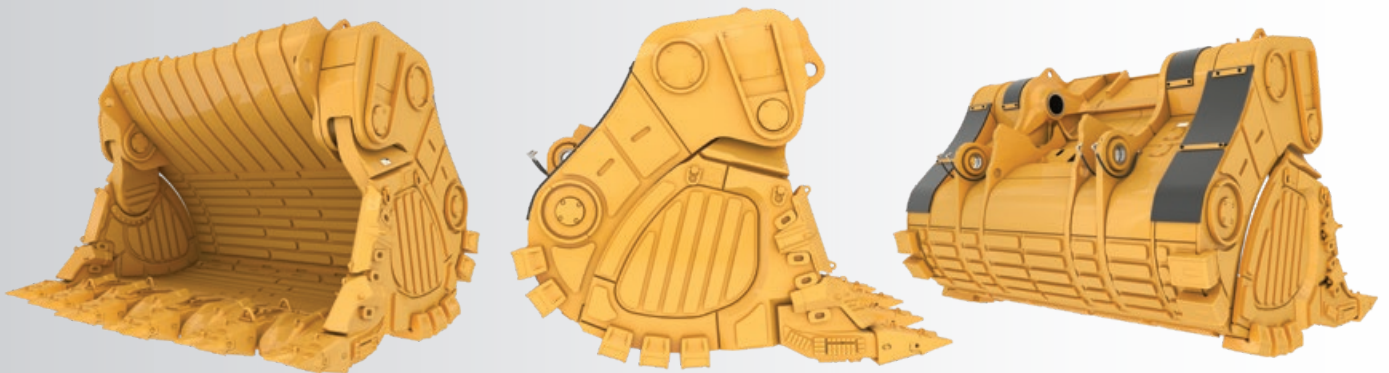
FACE SHOVEL
HEAVY ROCK

Cat Heavy Rock buckets for use in high-density (1.8 – 2.2 t/m³) material

RANGE:

11 m³ (14.4 yd³) —
31.0 m³ (40.5 yd³)

- + Abrasion wear package with 100% Chromium Carbide plates for maximum durability in extreme abrasive low-impact conditions
- + Impact wear package made from Q&T wear plates for maximum durability in high-impact conditions



FACE SHOVEL

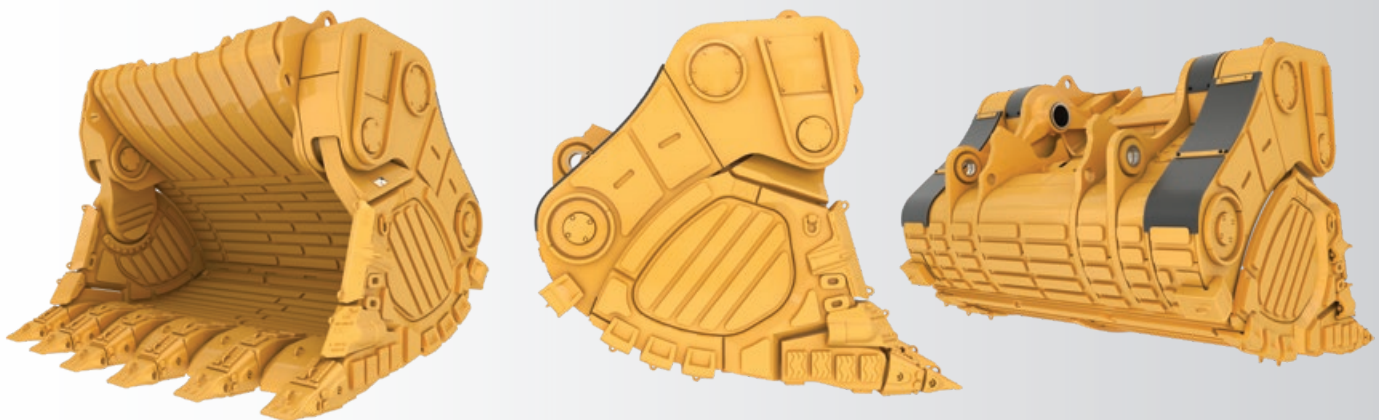
HEAVY ROCK AND ORE

Cat Heavy Rock and Ore buckets for use in high-density (>2.2 t/m³) material for maximum material movement

RANGE:

9.5 m³ (12.4 yd³) —
26.0 m³ (34 yd³)

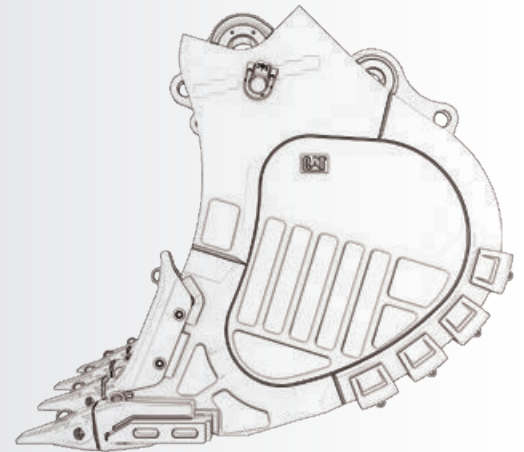
- + Abrasion wear package with 100% Chromium Carbide plates of higher thickness (>20mm) for maximum durability in extreme abrasive low-impact conditions
- + Impact wear package made from Q&T wear plates of higher thickness (>20mm) for maximum durability in high-impact conditions
- + Hinge and Lip wear protection always included
- + XL style heel-shrouds





BACKHOE BUCKETS

Caterpillar offers Hydraulic Mining Shovel backhoe buckets for the Cat 6015 and 6020 Versatility Class and the 6030, 6040 and 6060 Productivity Class. They are specifically designed to match Cat machines and provide performance without the risk of machine damage that can come from improperly sized competitive buckets. The addition of guarding where it is needed provides optimum bucket protection and extends bucket life.

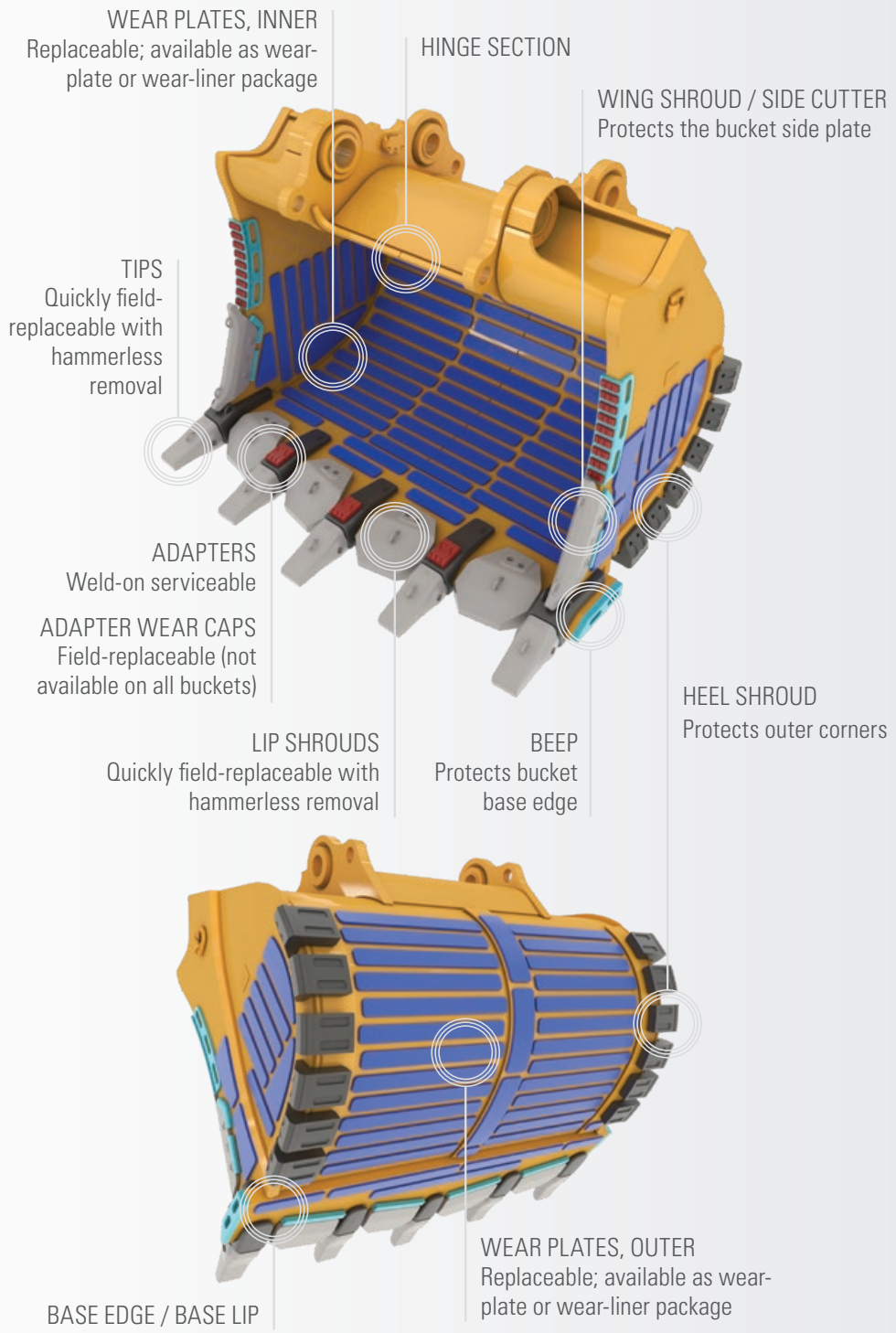


PAYLOAD

Backhoe bucket capacities are calculated according to ISO 7451 standard 1:1 heap ratio. Factors that may affect bucket size and fill include:

- + Specific weight / material density
- + Abrasiveness (degree of hard-facing)
- + Rock or grain size
- + Humidity
- + Penetration resistance
- + Operator technique
- + Operating conditions (e.g., bench height)

BACKHOE CONFIGURATION



BACKHOE

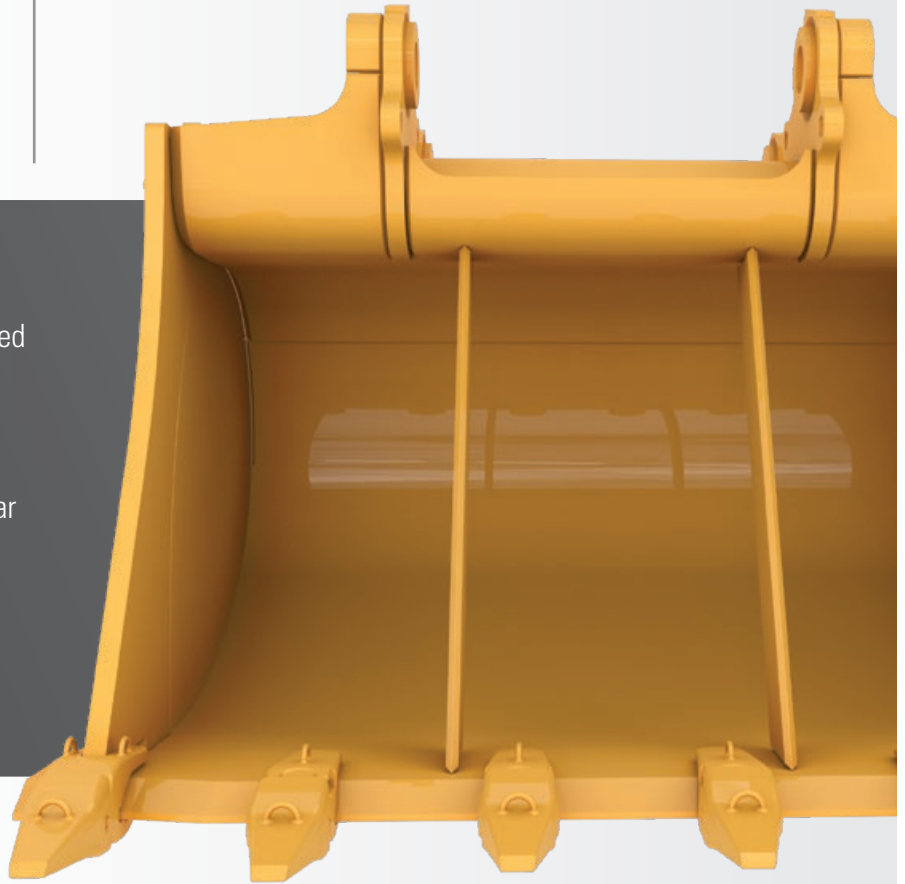
COAL

High-capacity Coal Buckets for use in low-density (up to 1.2 t/m³) material for maximum material movement

RANGE:

10.4 m³ (13.6 yd³) —
30.0 m³ (39.2 yd³)

- + Lightweight construction for increased bucket capacity
- + Straight lip design with small-sized GET for maximum payload
- + Special high-strength steel with wear resistance used for the plate lip



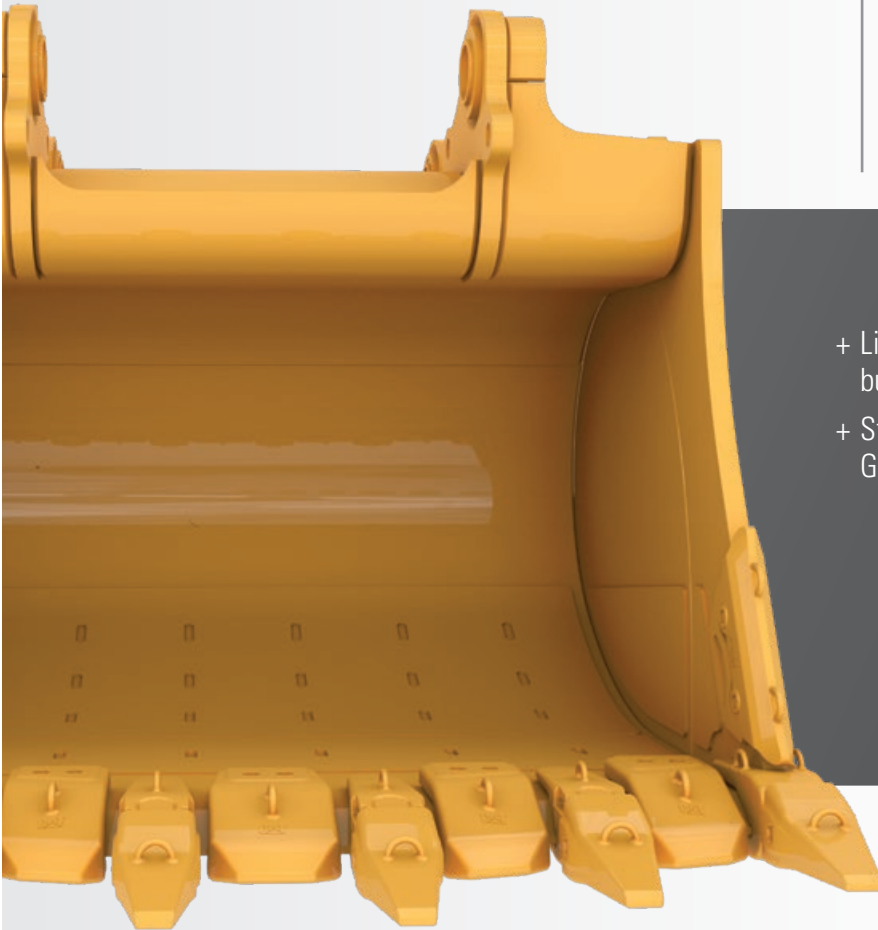
BACKHOE LIGHT ROCK

Light Rock buckets for use in light-density (up to 1.65 t/m³) and low-abrasive materials

RANGE:

13.7 m³ (17.9 yd³) —
36.0 m³ (47.1 yd³)

- + Lightweight construction for increased bucket capacity
- + Straight lip design with small-sized GET for maximum payload



BACKHOE

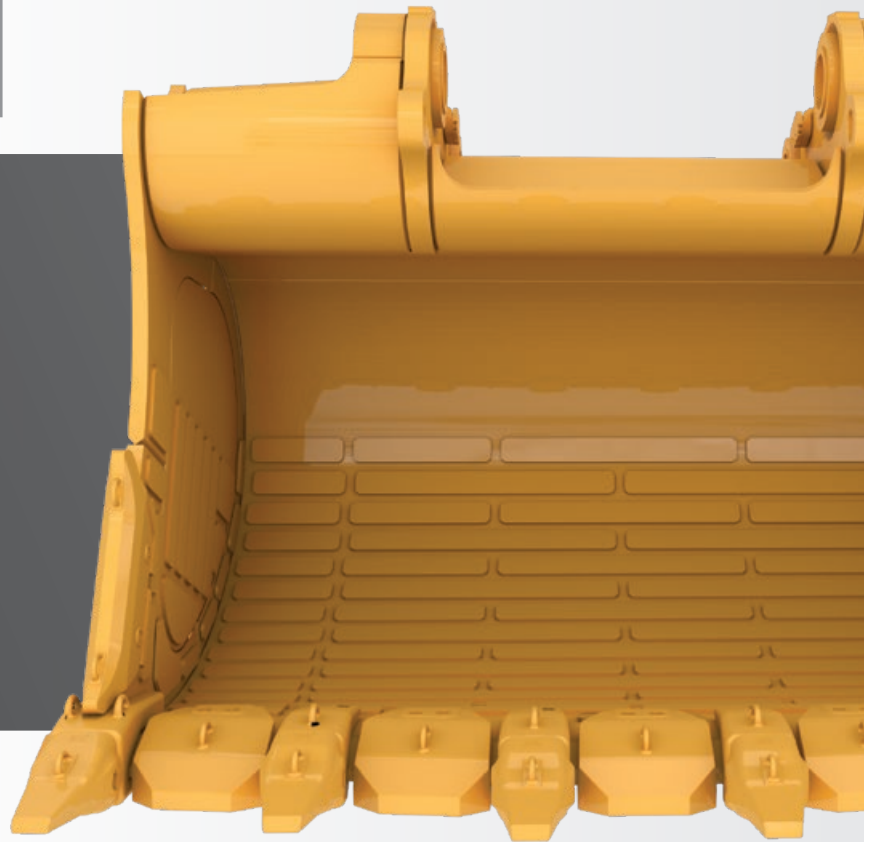
STANDARD ROCK

Standard Rock bucket for use in medium-density (up to 1.8 t/m³) material

RANGE:

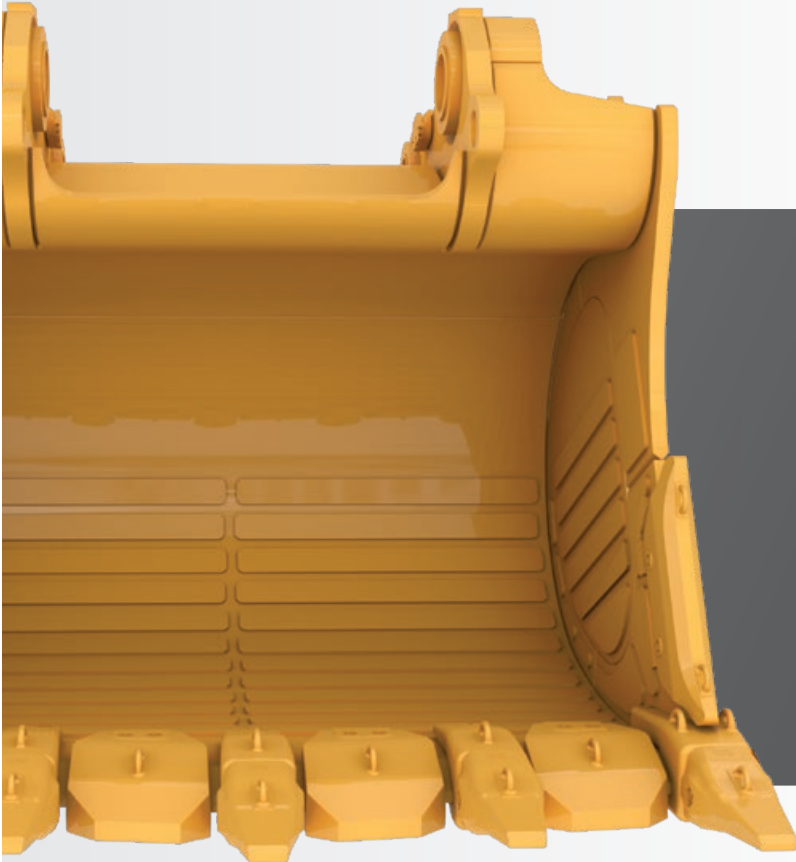
5.8 m³ (7.6 yd³) —
36.0 m³ (44.5 yd³)

- + Alloy Quenched & Tempered (Q&T) wear plates for maximum durability in high-impact conditions
- + Has wear protection for the leading edges as well as heel-shrouds
- + Wear plates usually Q&T in the shape of either narrow plates or large liners, to help with sticky material



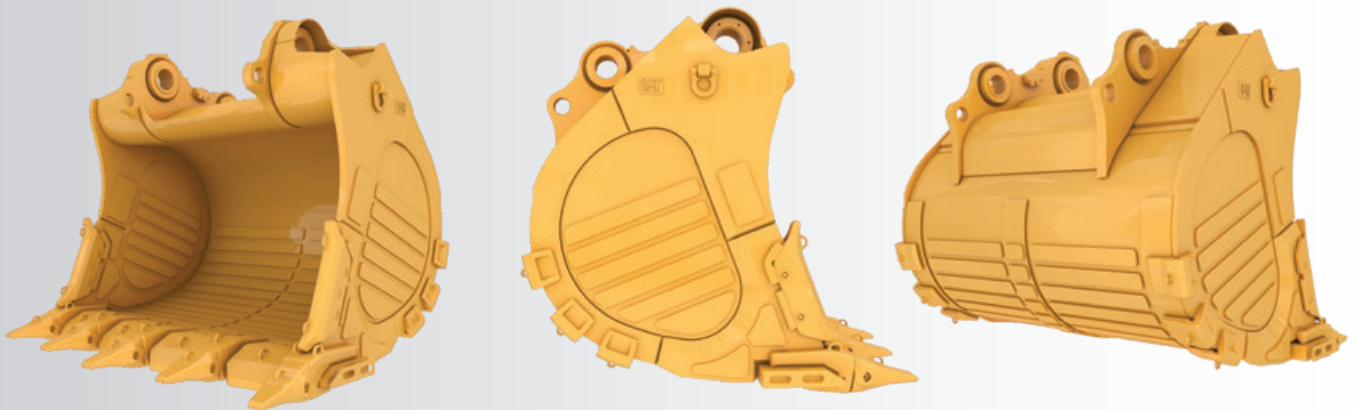
BACKHOE
HEAVY ROCK

Cat Heavy Rock buckets for use in high-density (1.8 – 2.2 t/m³) material



RANGE:
6.6 m³ (8.6 yd³) —
31.0 m³ (40.5 yd³)

- + Abrasion wear package with 100% Chromium Carbide plates for maximum durability in extreme abrasive low-impact conditions
- + Impact wear package made from Q&T wear plates for maximum durability in high-impact conditions



BACKHOE

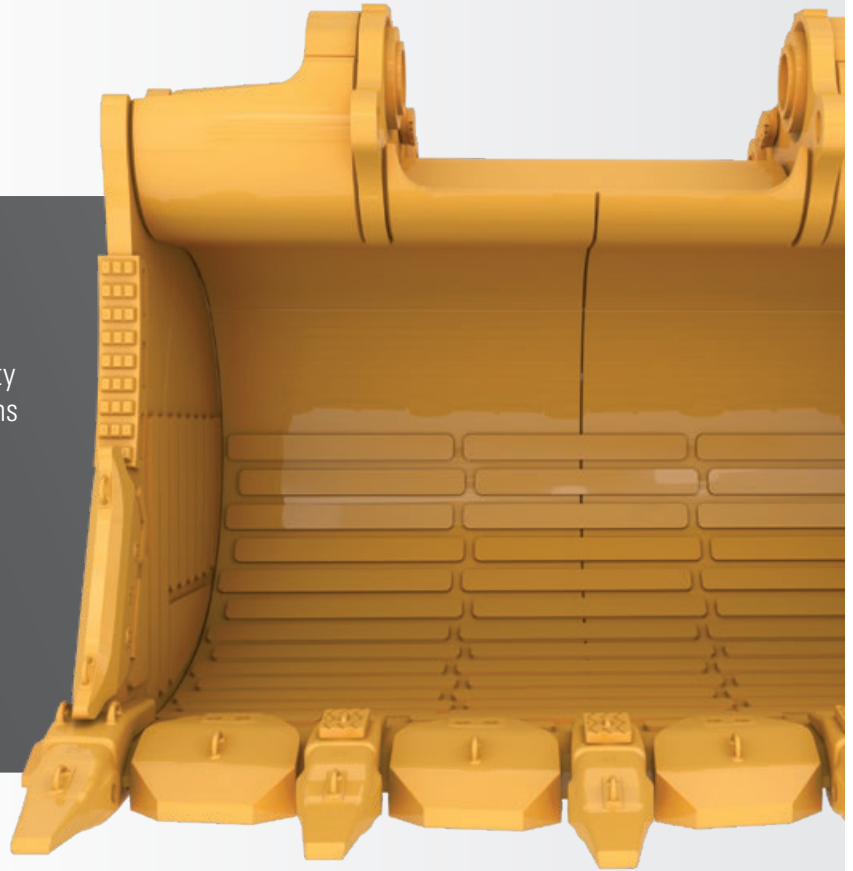
HEAVY ROCK AND ORE

Cat Heavy Rock and Ore buckets for use in high-density (>2.2 t/m³) material for maximum material movement

RANGE:

5.8 m³ (7.6 yd³) —
26.0 m³ (34.0 yd³)



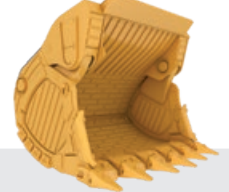


- + Abrasion wear package with 100% Chromium Carbide plates of higher thickness (>20mm) for maximum durability in extreme abrasive low-impact conditions
- + Impact wear package made from Q&T wear plates of higher thickness (>20mm) for maximum durability in high-impact conditions
- + Lip wear protection always included
- + XL style heel-shrouds



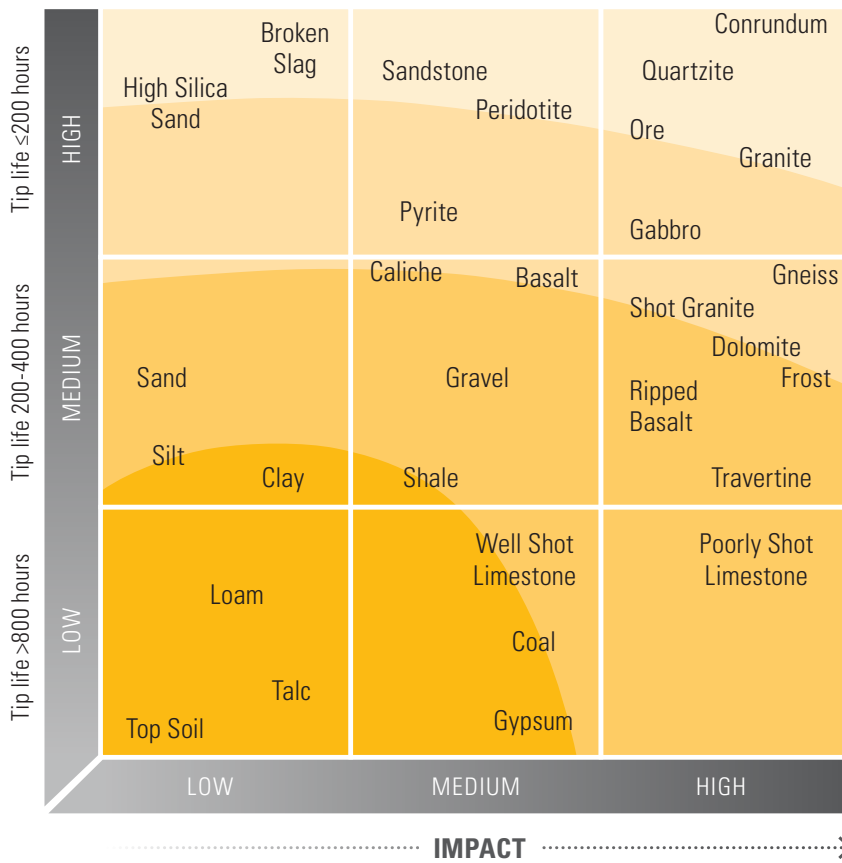


CHOOSING — THE — RIGHT BUCKET

CURRENT BUCKET OFFERINGS

	 Coal $\leq 1.2 \text{ t/m}^3$	 Light Rock $1.2 - 1.65 \text{ t/m}^3$	 Standard Rock $1.65 - 1.8 \text{ t/m}^3$	 Heavy Rock $1.8 - 2.2 \text{ t/m}^3$	 Iron Ore $> 2.2 \text{ t/m}^3$
6015	■	■	■		
6020	■	■	■	■	■
6030 BH		■	■	■	■
6030 FS			■	■	■
6040 BH	■	■	■	■	
6040 FS			■	■	■
6060 BH		■	■	■	
6060 FS			■	■	■

↑ ABRASION



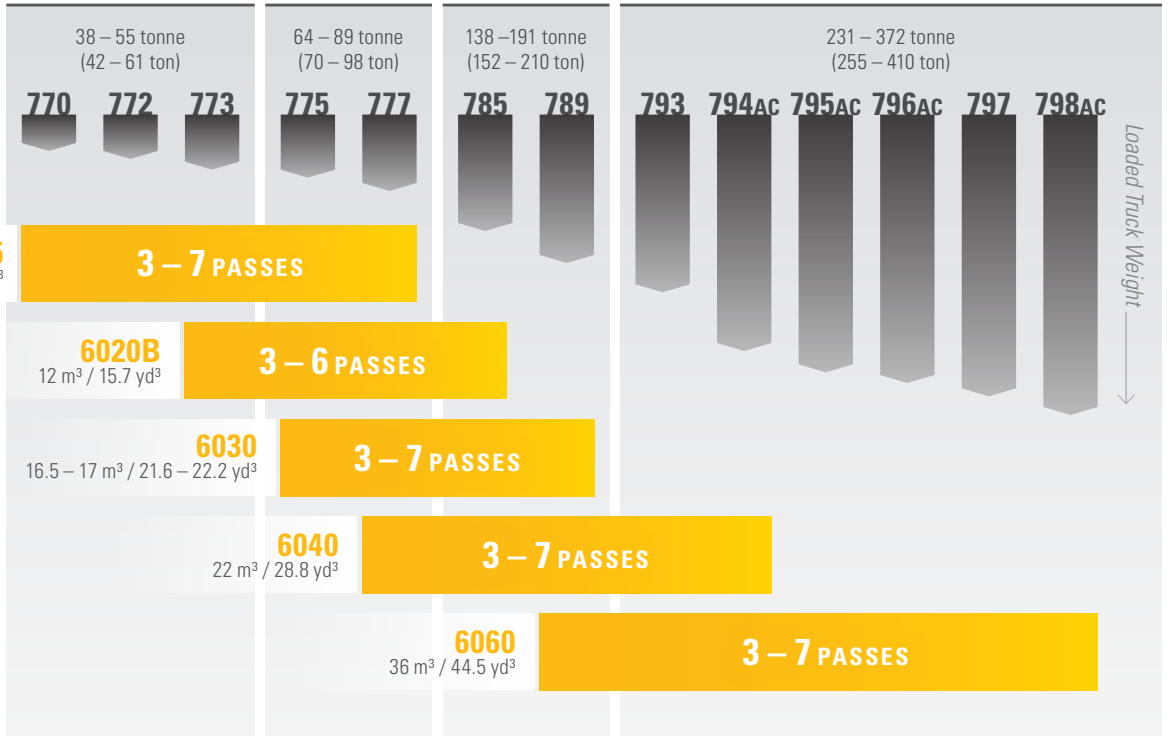
BUCKET SELECTION

– REFERENCE –

BUCKET TYPE / DENSITY

- Iron Ore**
>2.2 t/m³
- Heavy Rock**
1.8-2.2 t/m³
- Standard Rock**
1.65-1.8 t/m³
- Light Rock**
1.2-1.65 t/m³
- Coal**
 ≤ 1.2 t/m³

– TRUCK –
LOADING
PASS MATCH





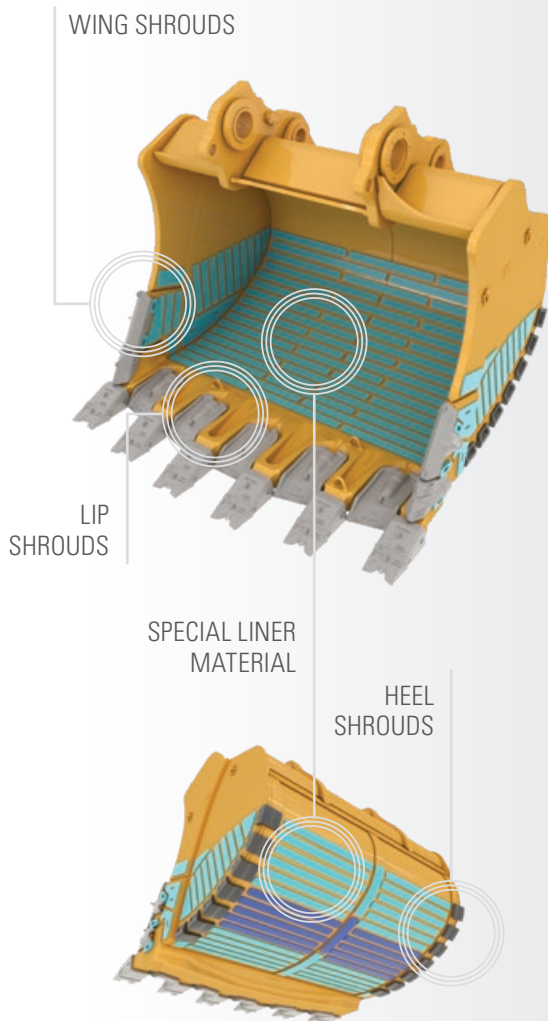
GROUND ENGAGING TOOLS AND WEAR COMPONENTS

Just as Cat buckets are the ideal choice for your Cat Hydraulic Mining Shovel, Cat Ground Engaging Tools (GET) and wear components are the ideal choice to boost productivity and increase the life of your bucket.

Cat GET and wear components are designed for seamless integration with your Cat bucket. We'll help you select the GET and wear parts that are right for your application. We'll also customize them to meet your specific requirements.

BUCKET WEAR PACKAGES

- + Special liner material covering main wear areas inside and outside of the bucket
- + Shrouds to protect the specific areas from impact and abrasion
 - Lip shroud between teeth
 - Wing shrouds on outer corners of the side walls
 - Heel shrouds at bottom edges



WEAR PACKAGE MAINTENANCE

Regularly scheduled inspections and replacement of worn bucket components are essential to maintain high productivity.

- + Lip shrouds and wing shrouds are secondary wear areas. They should be replaced after 3 to 5 tip replacements.
- + Heel shroud wear rates can be moderate to high wear and vary depending on operator technique. Lower heel shrouds will wear faster than the upper heel shrouds due to their proximity to the lip.

BUCKET DUTY AND WEAR-PACKAGE OPTIONS

BACKHOE

- + General Duty (GD)
 - 6015 Buckets only
- + Light Duty (LD) – Coal
- + Standard Duty (SD)
- + Heavy Duty (HD)
 - HD-I (Hardox)
 - HD-A (CC)
- + Extreme Duty (XD)
 - XD-I (Hardox)
 - XD-A (CC)

FACE SHOVEL

- + Light Duty
- + Light Rock
- + Standard Duty
 - SD- RoSD- Rock
- + Heavy Duty
 - HD-I (Hardox)
 - HD-A (CC)
- + Extreme Duty
 - XD-I (Hardox)
 - XD-A



ENGINEERED BUCKET SOLUTIONS

Selecting the right bucket for your application is critical to maximizing production and performance. That's why Cat Hydraulic Mining Shovel Buckets are available for a wide range of shovel sizes and applications, no matter the machine brand. Using the latest in engineering software, we detail designs, test the theory with finite element analysis, engineer for manufacture and conduct in-field follow-ups. Our in-depth engineering process results in productivity improvements and maintenance costs.

The size determination process requires your participation in a questionnaire and interviews with mine personnel, operations, maintenance managers and operators. The customer questionnaire aids us in recommending a bucket type and capacity.

The design process uses significant parameters, including ground density, wear package, and bucket weight, to optimize bucket-rated suspended load performance.

CUSTOM BUCKETS

Caterpillar offers buckets for every application, including engineer-to-order buckets. Modifications and supplements can be made to size, width, wear package and GET to meet specific application conditions.

GET SYSTEM OPTIONS FOR CAT HYDRAULIC MINING SHOVELS

CL-1	CAST LIP GET SYSTEM			
	W850 + 6040 FS	W900 + 6060	W950 + 6060 FS	
X-3	AFTERMARKET GET FOR CAST LIP SYSTEM			
	C110 + 6040 FS	C130 + 6060 + 6060 FS		
X-2	FABRICATED LIP SYSTEM			
	M75 + 6015 + 6018	C85 <i>100 mm</i> + 6020B	<i>120 mm</i> + 6030 + 6018 FS	C95 <i>140 mm</i> + 6030 FS + 6040



BETTER MANAGE GET WITH BUCKET PRO

Your Cat dealer offers sales, service and technical support you need to keep your bucket at maximum productivity. The Bucket Pro App helps you take that support to the next level.

You'll get real-time data on GET performance that will help you plan maintenance, manage your inventory and know your cost-per-ton.

- + Use your smart phone, iPad or tablet to perform regular inspections of GET and get instant reports.
- + Go online to calculate costs and view production trends of each bucket.
- + Use data to reduce costs and improve production of your GET system.

When you use Bucket Pro, your dealer can provide:

- + GET Inspection Reports. These instant, on-site reports include percent worn, future change-out dates and average life of all your GET.
- + Bucket Cycle Summary. These monthly summaries show bucket cycle trends for cost-per-ton, cost-per-hour and productivity, as well as average life trends.



HMS BUCKETS

For more complete information on Cat products, dealer services and industry solutions, visit us at www.cat.com

PEDJ1321

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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