

# 7495 HF

## Electric Rope Shovel



### Dimensions/Working Ranges

Dipper payload	109 tonnes	120 tons
Dipper capacities	30.6-61.2 m <sup>3</sup>	40-80 yd <sup>3</sup>
Operating weight – HydraCrowd™	1 442 274 kg	3,179,670 lb
Operating weight – Rope Crowd	1 429 120 kg	3,150,670 lb
Maximum dumping height	10.06 m	33 ft
Maximum dumping radius	21.64 m	71 ft

### Electrical

Drive	IGBT Acutrol drive system
System voltage (nominal)	50/60 Hz, 7200V
Trail cable (supplied by customer)	SHD-3-#1/0 at 8000V
Transformer, auxiliary	350 kVA, 7200V primary

## 7495 HF Features

At Caterpillar, we understand that:

- You work around the clock to meet the demand for commodities.
- Production machines, like the electric rope shovel, have a profound impact on your operation's cost-per-ton and overall production.
- You need a loading tool that works as efficiently, reliably and cost-effectively as possible.

To help you meet these challenges, lower your cost-per-ton, and take your productivity to new levels, we continue to improve the design and technology of our electric rope shovel through ongoing research and innovation.

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# Proven Productivity at a Lower Cost-per-ton



Electric rope shovels have been successfully removing overburden and ore on mine sites around the world for more than a century. Driven by a vision to make these highly productive machines safer, more reliable and even more productive, we challenged the status quo and built an electric rope shovel that's better.

# AC IGBT Electric

Simple, Safe and Robust Electric



## **Tried and True AC IGBT Electric Drive System**

You will experience greater machine uptime, lower operating costs, and faster cycle times via our AC electric rope shovel designs that leverage institutional knowledge built on 30 years of experience commissioning more than 200 AC equipped machines worldwide.

### **A Simpler System**

A streamlined AC system design that runs smoother, has fewer parts, and is easier to maintain, are the benefits you will realize, and the result of three decades of continuous improvement.

- A single, centralized control rack reduces parts requirements, eliminates communication issues between racks, and simplifies maintenance
- A single, compact drive cabinet houses the controller and drives to simplify assembly, troubleshooting, and maintenance
- Fuses, circuit breakers, and line filters have been eliminated reducing potential points of failure and overall parts requirements
- Parallel inverters have been removed to prevent uneven loading and to reduce the number of inverters required by the system
- The IGBT modules have been designed to be interchangeable between inverters and Active Front Ends (AFEs) and between motions and machines

### **A Safer System**

Your safety remains our highest priority, and is evident in our AC system design.

- The high voltage DC bus is located in the back of the drive cabinet and is never exposed during maintenance or troubleshooting
- The centralized control rack keeps maintenance personnel away from high voltage components when troubleshooting the controller
- Shielding blocks induced currents eliminating the need for high frequency bonding

### **A Robust System**

Helping to ensure your rope shovel remains in service, our AC system is designed to perform in the toughest mining conditions.

- The robust, welded drive cabinet was designed to withstand severe and consistent vibration
- An isolated, positive-pressure room houses the drive/controller cabinet to protect it from dust and debris
- Mine-grade components are used to ensure system performance and long, trouble-free life



# Operator's Cab

Maximize Operator Comfort and Safety to Boost Productivity



## Comfort Infused, State-of-the-art Operator's Cab and Station

Providing more comfort, added safety, and greater reliability, our newly designed state-of-the-art operator's cab will help you produce more. The product of a multi-year collaboration with mining companies and rope shovel operators from across the globe, our Design Engineers, armed with insights into the aspects most desired by you, have designed what we believe to be the most comfortable and productivity-enhancing operator's cab in the industry.

## Improved Performance

Increase productivity, and your bottom line, with our comfort-infused cab.

- Reduced fatigue-causing vibration resulting from bolstered support and stability of extended machinery house underneath isolator mounted cab
- Operator seat, armrests, and footrest adjust to perfectly fit a wide-range of body sizes
- Effortless operation and improved control response resulting from new, Hall Effect joysticks (patent pending), with custom-designed ergonomic handles and "finger touch control" spring tension
- Reduced cognitive fatigue and enhanced productivity via the intuitive and visually aesthetic display screens
- Display screens adjust for brightness and contrast to meet operator preference
- Climate control system automatically maintains a preset temperature





## Enhanced Safety

Ensure the safety of your operators with industry-leading cab safety features.

- For safer double-side loading and reduced crawler link damage, the large windshield, side windows, and floor window provide superior far-side and vertical line of sight for industry-leading visibility
- Augmented line of sight and improved operator situational awareness via external camera system with direct feed to five overhead monitors in cab
- Dual door design facilitates easy entry and exit from the cab and provides for rapid escape in case of highwall collapse or other emergencies
- Reduced trip hazards with no-step floor
- Enhanced safety during operator training with additional emergency stop button within reach of trainer seat

## Better Training

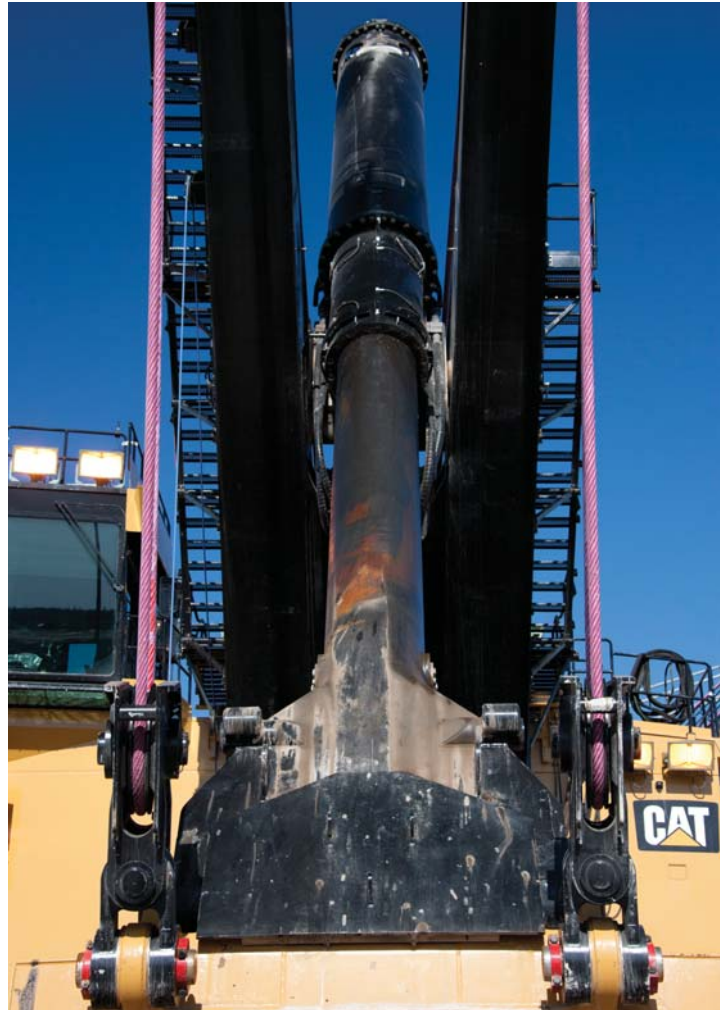
Reap learning and performance benefits from the enhanced training environment of our first-in-industry three-seat cab design.

- State-of-the-art, ergonomic operator's seat maximizes operator comfort and productivity
- Adjacently positioned trainer seat provides optimal view of working face, facilitates communication during training, and provides ready access to the trainer emergency stop button
- Elevated observer's work station, positioned behind the operator seat, provides space for laptop and optimum visibility of operator station and digging environment

## More Reliability

To ensure consistent and reliable performance in the harshest mining conditions, cab components were carefully selected for ruggedness.

- Custom cabinets designed to eliminate rattling
- Heavy-duty refrigerator built to withstand shovel vibrations
- High efficiency, adjustable LED lights optimize visibility



## Front-end Design

Reduced Front-end Weight,  
Reliable Structural Strength

### **Safety, Reliability and Productivity Advantages Afforded by Our Unique Design**

Greatly improved digging efficiency, safety, and component life are the results of our unique, yet robust front-end design, particularly when compared to rack-and-pinion systems.

### **Faster Cycle-times, Improved Line-of-sight, and Safer Maintenance**

Enhance both loading safety and productivity at your mine with a lighter front-end that affords better line-of-sight and serviceability.

- Faster swing times resulting from reduced swing inertia of lighter front-end
- Improved left-hand line-of-sight with deck-mounted crowd machinery that reduces visibility-impeding components on the boom
- Reducing fall hazards, deck-mounted crowd machinery allows the majority of crowd maintenance to be completed from the protection of the machinery house deck



## Reduced Cracking and Extended Component Life

Experience greater uptime and component reliability with our unique, yet robust front-end design

- Highly crack resistant one-piece, forged dipper handle
- Extending boom and dipper handle life, rotating handle design transmits torsional stress into the hoist ropes
- Reducing wear and cracking at the boom/dipper handle junction, crowd and retract ropes or hydraulic fluid absorb kickback force caused by dipper colliding with poorly shot material
- Reduced lube usage by replacing racks and pinions with tubular handle and ropes or hydraulic cylinder greatly reduces lube usage

## Easier, More Efficient Digging

Realize more productive and efficient digging facilitated by our wide-set boom point sheaves.

- Twin hoist ropes balance dipper pull in the bank via wide-set boom point sheaves, automatically distributing digging force where it is needed most

## Simplified Maintenance

Get your primary loading tool back to work quickly with simpler, more straight-forward maintenance.

- Design facilitates handle installation and requires fewer adjustments
- Crowd and retract rope adjustments are made from the safety of the machinery house roof – rather than on the boom, as required by rack and pinion systems
- Elimination of bi-annual, major maintenance handle re-racking procedure with tubular handle instead of racks

## Description of Cat Front-end

- Stress-relieved, impact resistant steel boom with twin box girder design – 100% penetration and UT quality welds on all major splice joints
- Modular, deck-mounted crowd assembly includes AC motor, spring-set air-release disc brake, and hydraulic power pack
- Maintenance-free, one-piece, high-alloy, forged steel handle designed to rotate freely in the saddle block
- Saddle block, with one-piece liner, rotates about shipper shaft on a manganese bronze bushing, guiding the longitudinal movement of the handle



# Crowd Systems

Reduce Torsional Stress and Extend Component Life with Our Traditional and Innovative Designs



## Results are What You'll Get from Either Crowd System

Each providing outstanding performance and high reliability, you have two crowd system designs to choose from. Our traditional rope crowd is a tried-and-true design, proven reliable in mine sites across the globe for three-quarters of a century. The innovative HydraCrowd goes a step further, making maintenance more predictable and keeping your rope shovel in production longer.

## HydraCrowd

### ***Eliminates Routine Crowd/Retract Rope Replacements***

HydraCrowd extends maintenance intervals and improves your overall productivity with a patented innovative design that replaces crowd and retract ropes with a hydraulic cylinder.

- Increases uptime and enhances productivity via reduced scheduled maintenance hours
- Eliminates routine crowd/retract rope changes
- Extends major maintenance interval to two years
- Maintains the benefits of our unique front-end design

### ***Description of HydraCrowd***

- Four bent-axis, fixed-displacement pumps feed a single cylinder inside the tubular dipper handle
- Hydraulic power pack located in the front of the machinery house
- System controlled by proven Cat IGBT technology
- Large-capacity, dirt-tolerant cartridge valves provide high reliability and long service life
- Diagnostic software and troubleshooting system with step-by-step instructions inherent in the PLC controls

## Rope Crowd

### ***Consistent Performance, Trusted Reliability***

Our traditional rope crowd provides predictable and reliable performance established over 75 years.

- Rack and pinion misalignment challenges are eliminated with our tubular handle design
- Front-end cracking is reduced, as crowd and retract ropes absorb shock
- Torsional stress is eliminated with our rotating dipper handle, reducing cracking and extending component life



# LatchFree Dipper System

Preventing Downtime with  
a Revolutionary Approach



## Avoid the Leading Cause of Rope Shovel Downtime for Over a Century

Spend more time digging, and less time performing unplanned dipper maintenance with the LatchFree Dipper System.

The first successful solution to the number-one cause of rope shovel downtime, the LatchFree Dipper System replaces the maintenance-intensive latch assembly with a strong steel link mounted to the dipper back, away from material flow. To ensure you achieve maximum benefits, the system comes complete with a comprehensive training program.

### Improved Safety

- Enhances safety by eliminating daily maintenance on the latch bar, latch keeper, shims, and inserts

### Greater Uptime

- Improves reliability by eliminating the electric rope shovels' leading downtime occurrence: the latch assembly

### More Productive Digging/Loading

- Increases efficiency by reducing lost loads

### Better Component Life

- Reduces component wear by repositioning components away from the harsh conditions of the lower dipper door

### Description of LatchFree Dipper System

- A strong steel holding link and eccentric replace the traditional dipper latch assembly
- Components are mounted to dipper back, rather than dipper door, away from the material flow
- The door closes by gravity as the dipper is lowered
- Available on both FastFil™ and Straight-Side dipper designs
- Comes complete with a comprehensive training program

# Dipper Options

## Longer Dipper Life

### Meet the Challenges of any Mining Environment with Two Design Options

Providing extended dipper life and optimal fit with your application, our FastFil and Straight-Side Dippers help you move more.

- Manufactured from cold-weather, impact-resistant, high strength steel for strength and durability
- Stress relieved dipper back to prevent cracking
- Key welds inspected using nondestructive testing
- Expertly sized for your application
- Designed for easy repair

### Straight-Side Dipper

#### **Maximized Payload Capability**

Offering a larger payload range, our Straight-Side Dipper maintains quality and reliability of our FastFil Dipper design.

- Box shape design accommodates larger dipper sizes
- Available in sizes up to 61.2 m<sup>3</sup> (80 yd<sup>3</sup>)

### FastFil Dipper

#### **Faster, Fuller Dipper Loads**

Improving fill factors and helping you hit your productivity targets the trapezoidal shape of our FastFil Dipper accommodates the natural configuration of the load, eliminating voids that occur with box-shaped dippers.

- Trapezoidal shape eliminates the void that occurs at the back of the dipper with the traditional dipper shapes
- Improved maneuverability and faster swing times resulting from reduced dipper size and weight
- Improved bank penetration and elimination of bulldozing for material turbulence due to optimized lip and rake angles
- Reduced load and dump times facilitated by shorter dipper body
- Fill factors average > 100% (110% typical)
- Available in sizes up to 49.7 m<sup>3</sup> (65 yd<sup>3</sup>)



# Loading/Hauling Efficiency

Move More Material with Optimal Pass Match Pairings

## Achieve Targeted Loading/Hauling Production with Perfectly Paired Cat Rope Shovels and Mining Trucks

For full truck payloads with minimum loading time, an efficient loading/hauling system begins with an optimized equipment match. Cat electric rope shovels are matched with Cat mining trucks to maximize volume of material moved at the lowest operating cost per ton.



### 7495 HF Pass Match with Cat Mining Trucks

	797F	795F AC	793F	793D
	363 tonne (400 ton)	313 tonne (345 ton)	226.8 tonne (250 ton)	220 tonne (240 ton)
7495 HF	4	3	2	2

### 7495 HF Pass Match with Unit Rig Mining Trucks

	MT6300 AC	MT5500 AC	MT5300D AC	MT4400D AC
	363 tonne (400 ton)	327 tonne (360 ton)	290 tonne (320 ton)	220 tonne (240 ton)
7495 HF	4	3	3	2



# Third Rail Swing System

## Faster Cycle Times and Extended Component Life

Providing optimum speed and cycle time, all while extending component life, our swing system is designed to help keep your rope shovel swinging longer and filling trucks faster.

### Even Loading

Achieve maximum component life with our swing system design that ensures reduced and even swing rack wear.

- Eliminating the need to rotate the swing rack, two swing gearcases, positioned 180° apart, produce even swing rack wear
- Reducing wear on the swing rack and swing pinions, straddle-mounted, dual-output pinions decrease tooth loading

### Better Serviceability

Mean-time to repair is reduced, as most repairs involve the third rail, rather than the rollers.

- The easy-to-replace third rail, rather than roller flanges or the swing rack, serves as the primary wearing part in the system, greatly simplifying maintenance
- Provides roller access without jacking up the upper half of the machine





# Cat MineStar System and Technology Solutions

Evolving Your Mine for Greater Safety and Productivity

## Helping you Enhance Safety and Productivity Through Technology

Aimed at enhancing the productivity and profitability of your rope shovel, we currently offer a combination of Cat MineStar System offerings and Cat rope shovel technology solutions.

### Cat MineStar System

Helping you achieve your goals for enhanced mine site safety, improved efficiency, reduced operating costs, and greater profitability, the Cat MineStar System provides the most comprehensive suite of mining technology products in the industry. It consists of a number of configurable capability sets – Fleet, Terrain, Detect, Health, and Command – that allow you to scale the system to your mine site needs. Cat MineStar System helps you manage everything from material tracking to sophisticated real-time fleet management, machine health systems, autonomous equipment, and more.



The Cat 7495 HF is currently able to utilize two of the Cat MineStar System capability sets:

- Fleet
  - Fleet provides real-time machine tracking, assignment and productivity management, providing a comprehensive overview of all your asset operations from anywhere in the world.
- Terrain
  - Terrain enables high-precision management of drilling, dragline, grading and loading operations through the use of guidance technology. It increases machine productivity and provides you real-time feedback for improved efficiency.

The remaining Cat MineStar System capability sets are currently under development for the Cat rope shovel product line.

### Rope Shovel Technology Solutions

To help increase productivity, reduce unplanned downtime, and improve planning accuracy, our electric rope shovel technology package collects, transmits, stores and analyzes key data. The technology package includes AccessDirect™, MIDAS, AccuLoad, and Bearing Temperature Monitoring.

#### AccessDirect

Expedite maintenance with remote access to your rope shovel data in real-time.

- Enables factory experts to join the local maintenance team
- Prepares maintenance personnel to go to the machine ready to correct rather than analyze the problem
- Reduces daily maintenance efforts

#### MIDAS

Maintain constant awareness of machine health with MIDAS, our health monitoring software that provides, logs, and analyzes data on a variety of machine variables.

- Broadens understanding of machine performance
- Delivers insight into how best to utilize machines in mine operations
- Generates reports that can be easily analyzed to identify opportunities to improve machine performance

#### AccuLoad

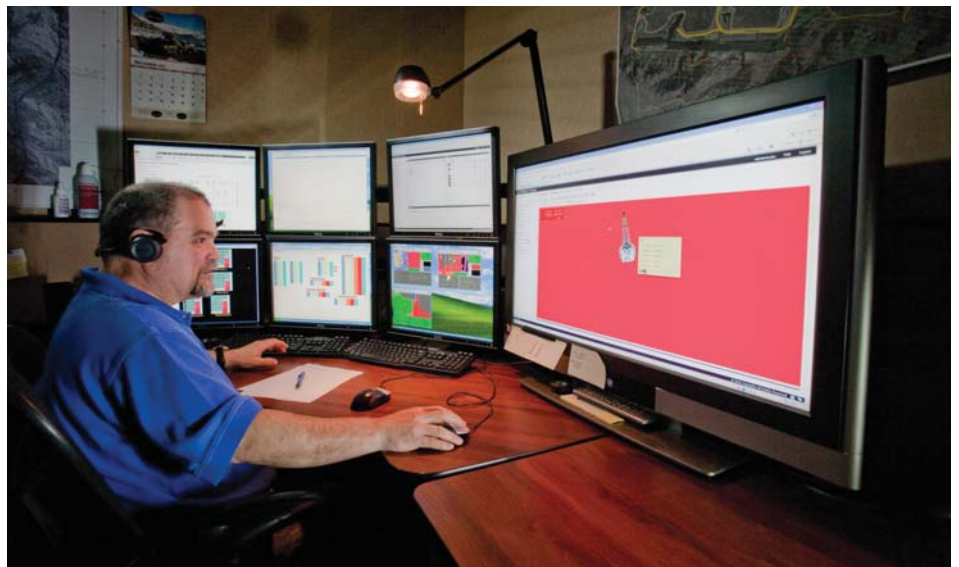
Improve productivity with real-time dipper load feedback directly to operators.

- Improves productivity by allowing operator to monitor load and shift performance
- Reduces machine and truck overloading

#### Bearing Temperature Monitoring

Better maintenance predictability and reduced risk of failure via bearing temperature monitoring, a system that monitors bearing temperature and alerts operator of high temperatures.

- Helps predict maintenance through bearing temperature trending
- Reduces risk of major failure





## Major Structures

Bolstering Your Investment with Robust and Durable Structures

### Rugged Structures Designed and Fabricated to Withstand Your Extreme Mining Conditions

To extend service life and ultimately reduce your maintenance cost, all major rope shovel structures are designed for durability and dependability. Extended performance in the harsh mining conditions you face daily is accomplished through selection of high-strength steels, and rugged castings, joined and thermally stress-relieved to create a reliable shell capable of one of the most productive loading tools in the industry.

- Manufactured from cold-weather, impact-resistant, high strength steel for strength and durability
- Full penetration, profiled and ground welds at critical junctures
- MT, UT, and X-ray inspections on select welds ensure quality
- Entire structures are stress relieved to prevent cracking
- Factory installed manholes and ladders assist inspection
- White painted interiors facilitate crack inspection





# Lower Works

## Keep Moving in All Mining Conditions



### Enhanced Maneuverability, Extended Component Life, and Consistent Reliability are the Foundation of this Powerful Machine

Intended to enhance digging/loading capability, ground footing, and mobility, a newly designed propel system and battle tested crawlers come standard on all Cat electric rope shovels.

- Stress relieved crawler frames resist cracking
- Lower rollers design withstands periodic single-point ground reaction caused by uneven pit floors
- Crawler-mounted propel motors facilitate maintenance and reduce misalignment
- Upward slanted propel motor shelves protect components from rocks and water
- Elevated drive tumbler isolates planetary drive from ground impact shock loads
- Sprocket-style drive tumbler lugs provide a large area of contact against the crawler links for extended tumbler and link life
- Straddle-mounted rollers improve component wear and extend life



### High-Floatation (HF) Undercarriage Design

Designed specifically for soft ground conditions, like those found in the Canadian oil sands mines, our high-floatation undercarriage ensures low ground-bearing pressure for improved digging, loading, and productivity.



# Safety

## Designed with Your Safety as Our Top Priority

Sharing your commitment to safety, and driven by our commitment to Zero Harm, we work tirelessly to design the safest machines possible to protect your most important asset; your employees.

### Machine Access

- Forty-five degree rear facing boarding stair provides fast and convenient access to the machine
- Grip-strut stairs, platforms and walkways facilitate safe movement around the machine

### Visibility

- Panoramic view from the operator's seat offers the best far-side visibility in the industry
- Cameras feed five in-cab, overhead monitors to augment line of sight and elevate situational awareness

### Operator Environment

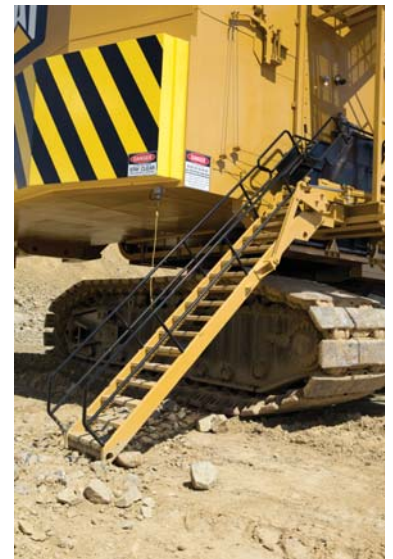
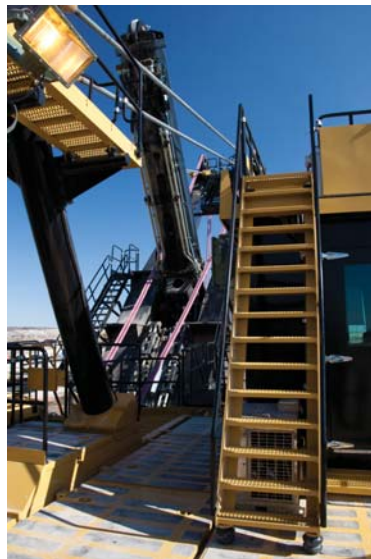
- Dual door design facilitates entry and exit from cab and provides a quick escape in case of a high wall collapse
- No-step floor reduces trip hazards
- Operator training seat facilitates safe operator training
- Second emergency stop button allows the trainer to stop the machine to avoid an accident

### Stored Energy Warning Signs

- Stored energy locations are clearly marked with signs warning personnel of danger

### Maintenance

- Reduced number of maintenance events afforded by HydraCrowd and the LatchFree Dipper System
- Easier maintenance and reduced fall hazard with deck-mounted front-end machinery





# Serviceability

## Designed to Get You Back to Work Fast

Lowering your operating costs and maximizing your rope shovel's uptime and productivity is of supreme importance to us. To that end, we continually strive to automate maintenance procedures, extend maintenance intervals, and simplify maintenance activities for our electric rope shovels.

### Automated Maintenance Procedures

- Automatic lubrication system covers all regular lube points
- HydraCrowd system self-monitors pressure, contamination, and pump condition

### Extended Maintenance Intervals

- HydraCrowd eliminates routine crowd/retract rope changes extending the major maintenance interval to two years
- LatchFree dipper eliminates the daily hassle of maintaining a latch bar assembly and extends the major maintenance interval

### Simplified Maintenance Activities

- Walkways provided for major service points
- Additional platforms provided for gear inspection
- Factory installed ladders inside boom for easy access
- White painted interiors in major structures to facilitate crack inspections
- Easy-to-remove roof hatches offer access to machinery house components
- Electro-hydraulic crowd rope take-up system simplifies crowd rope tightening
- On board accessible diagnostic system identifies faults and gives instructions to resolve issues
- Third-rail swing system offers access to center rollers without jacking up the shovel's upper works
- Lock out tag out points for safer maintenance

# Customer Support

Stay Up and Running with Service and Support from Our Unmatched Global Network





### **Providing You a Unified Team Unlike Any Other in the Mining Industry**

While the Caterpillar acquisition of Bucyrus is complete, we are still in the process of integrating the two companies. However, you can rest assured that both your Cat and Bucyrus products will continue to be supported and that there will be no disruption in the service you have come to expect from both organizations.

We are committed to business as usual – with sales, parts fulfillment, technical support, and all other customer services continuing uninterrupted. For the time being, Caterpillar Global Mining will operate from two distinct distribution channels:

- Legacy Bucyrus products, including the electric rope shovel, will continue factory direct with support from former Bucyrus employees
- Traditional Cat products will continue through Cat dealers with support from Global Mining

### **We Will Transition Products to the Cat Dealer Network**

With the goal of providing you with one face and the distribution approach that positions you best for success, we will leverage the strength of the Cat dealer network. All products will eventually be sold and serviced by Cat dealers; however, the transition will occur in phases until complete.

### **We Will Create an Unparalleled Source For Support**

The expertise you have come to depend on will continue in the Caterpillar organization, whether through a Cat dealer or from Caterpillar – combining the best of both organizations to create one unparalleled source for support.

### **Until the Transition is Complete...**

To ensure you have the support necessary to meet your production requirements, experienced and knowledgeable Cat Service Engineers are available throughout the world.



## Operator Training

### Maximize Your Investment

Aimed at advancing a novice operator to expert levels in a rapid time frame, our combination of on-site and computer-based training provides all the tools your staff will need.

To help maximize your investment in a Cat electric rope shovel, we provide on-site operator training assessments, on-site electrical and mechanical maintenance training, and a variety of computer-based training options.

#### **Customized Training**

- On-site and/or classroom training for rope shovel operators and mine operation supervisors
- Aimed at developing internal training competency for your operation
- Designed in module form to target key production issues specific to your operation
- Trainers have years of experience with hands-on and classroom training, offering the necessary skills to implement changes on all aspects of operation, machine management, and maintenance
- Utilizes cutting-edge technologies to improve knowledge retention, increase training efficiency, and create a safer learning environment via machine simulation

#### **VAST (Value-Added Simulation Training)**

- Exclusive Cat electric rope shovel simulator which replicates machine controls, responses and typical sensors found in mining operations
- Minimizes interruptions in mine productivity due to operator training while reducing shovel damage, repair costs and overall training costs
- Tracks and evaluates user progress
- Available in English, Spanish and French



Meeting the needs of today without compromising the needs of tomorrow is the goal for all Cat machinery. The commitment to helping you operate safely and sustainably is affirmed in the production of the 7495 HF rope shovel.

## **Cat Rope Shovel Sustainability**

### ***Electric Power***

More efficient than diesel powered machines, Cat electric rope shovels are entirely electric and therefore experience less heat loss.

### ***Regenerative Power***

Cat electric rope shovels use regenerative braking technology to convert kinetic energy from shovel motions into electrical energy when braking. The electrical energy that is generated is then fed back to the grid. Without regenerative braking, the kinetic energy would be burned off as heat.

### ***Long Life Cycles***

Fewer component change-outs result in less waste. Component change-out intervals for electric rope shovels are generally longer than those for similar-sized hydraulic machines.

### ***Rebuilds***

Saving you money and reducing waste in the environment, electric rope shovel motors and gearcases can be rebuilt.



# **Sustainability**

## Higher Standards for a Better Tomorrow

# 7495 HF Electric Rope Shovel Specifications

## Dimensions – with HydraCrowd

Dipper payload (Available dipper payloads up to 109 tonnes (120 tons) when specified)	100 tonnes	110 tons
Dipper capacity	30.6-61.2 m <sup>3</sup>	40-80 yd <sup>3</sup>
Length of boom	20.4 m	67 ft
Effective length of dipper handle	10.9 m	35 ft 10 in
Overall length of dipper handle	14.3 m	47 ft

## Weights – with HydraCrowd

Working weight, with dipper and standard links	1 442 274 kg	3,179,670 lb
Net weight, domestic, without ballast or dipper	1 059 056 kg	2,334,820 lb
General-purpose dipper – 56 m <sup>3</sup> (73 yd <sup>3</sup> )	80 603 kg	177,700 lb
Ballast (furnished by customer)	302 614 kg	667,150 lb

- These weights will vary slightly depending upon dipper and optional equipment selection

## Main Structures – with HydraCrowd

### Crawler Mounting

Overall width 317.5 cm (125 in) treads, standard	12.73 m	41 ft 9 in
Overall length of mounting	11.43 m	37 ft 6 in
Overall width 355.6 cm (140 in) treads	13.5 m	44 ft 3 in
Total effective bearing area (317.5 cm treads)	57.1 m <sup>2</sup> 248 kPa	615 ft <sup>2</sup> 35.9 psi
Total effective bearing area (355.6 cm treads)	64 m <sup>2</sup> 221 kPa	689 ft <sup>2</sup> 32.1 psi
Number and diameter of rollers		
Lower: 16	79.4 cm	31.25 in
Lower rear: 2	106.7 cm	42 in
Upper	Slides	
Take-up tumblers diameter	162 cm	63.8 in
Number and pitch of treads: 94	50.8 cm	20 in

### Planetary Propel

Dual-motor independent drive

### Revolving Frame (Center Section)

Welded, impact-resistant steel

Length	8.38 m	27 ft 6 in
Width	3.68 m	12 ft 1 in

### Turntable

Forged rim, alloy steel swing rack pitch diameter	5.26 m	17 ft 3 in
Teeth external cut – face	24.13 cm	9.5 in
Tapered, forged alloy steel roller rails diameter	4.52 m	14 ft 10 in
Number of tapered rollers	50	
Tapered rollers diameter	27.31 cm	10.75 in

### Swing

Two planetary gearboxes, each driven by a vertically mounted motor, are mounted on either side of the revolving frame. Dual-output pinion shafts from each gearbox engage the swing rack.

### Hoist

A planetary gearbox with dual-output pinions provides the hoist torque transfer from the electric motor to the hoist drum gear.

## Lube System – with HydraCrowd

- Single-line system applies lubricant and grease via the PLC
- Six pumps (four for lubricant and two for grease) located in an insulated, double-walled lube room

## Electrical – with HydraCrowd

### Drive

IGBT Acutrol drive system

### Power Requirements

Voltage	3 phase, 50/60 Hz, 7200V
Average 15-minute demand	945-1322 kW
Peak power	3778 kW

- Other voltage options available to suit customer requirements

### Distribution System Requirements

Machine on separate system	4000 kVA
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### Main Electrical Systems

System voltage (nominal)	50/60 Hz, 7200V
Trail cable (furnished by customer)	SHD-3-#1/0 at 8000V
Transformer, auxiliary	350 kVA, 7200V primary
Lighting transformer	2 at 25 kVA 120/240V secondary

### Lights

- HPS lights on boom feet, top of A-frame, machinery house, lube room, control room, utility room and flood lights
- Incandescent lights on ground lights, walkways and operator's cab

## Front End – with HydraCrowd

### Boom

Boom	welded, impact-resistant steel	
Boom point sheaves	twin-grooved, flame-hardened	
Boom point sheave diameters	243.84 cm	96 in
Handle diameter	86.36 m	34 in
Wall thickness (nominal)	7.62 cm	3 in

### Rope Data

	No.	Diameter	Type	Construction
Hoist	2	69.8 mm (2.75 in)	twin dual	8 × 37
Boom susp.	4	82.6 mm (3.25 in)	equalized	struct. strand
Dipper trip	1	19.1 mm (0.75 in)	single	7 × 25

### Crowd

HydraCrowd, hydraulic power skid, located at the front center of the revolving frame deck, powers a large hydraulic cylinder to move the dipper handle fore and aft

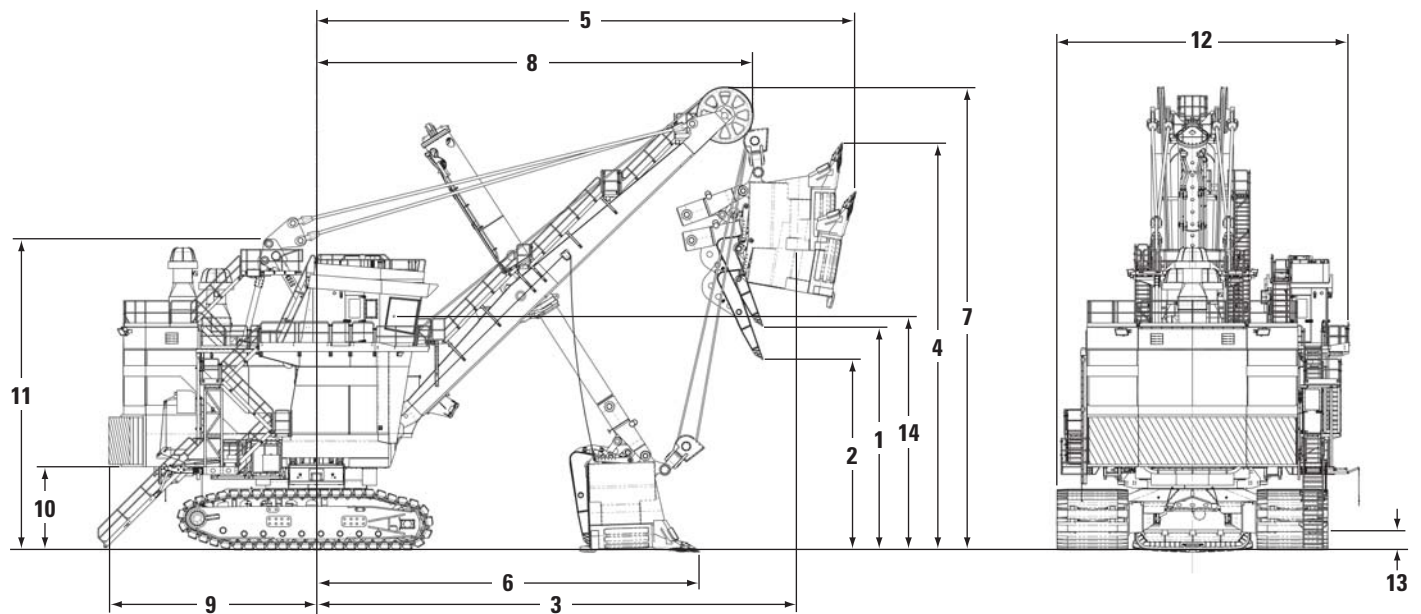
Hydraulic cylinder bore diameter (nominal)	35.6 cm	14 in
Hydraulic cylinder rod diameter (nominal)	24.5 cm	10 in

(Optional) Rope Crowd, the crowd machinery is located at the front center of the revolving frame, consisting of motor, brake, drum and gearing. Plastic-coated crowd and retract ropes are used to move the dipper handle fore and aft.

# 7495 HF Electric Rope Shovel Specifications

## Dimensions – with HydraCrowd

All dimensions are approximate.



### Optimal Working Ranges

<b>1</b> Dumping height	10.06 m	33 ft
<b>2</b> Dumping height at maximum electric crowd limit	8.61 m	28 ft 3 in
<b>3</b> Maximum dumping radius	21.64 m	71 ft
<b>4</b> Maximum cutting height	17.8 m	58 ft 5 in
<b>5</b> Maximum cutting radius	25.2 m	82 ft 8 in
<b>6</b> Radius of level floor	17.47 m	57 ft 4 in
<b>7</b> Clearance height (boom point sheaves)	20.87 m	68 ft 6 in
<b>8</b> Clearance radius (boom point sheaves)	19.65 m	64 ft 5 in
<b>9</b> Maximum clearance radius (revolving frame)	9.34 m	30 ft 8 in
<b>10</b> Clearance under frame (to ground)	3.76 m	12 ft 4 in
<b>11</b> Height of A-frame	14 m	46 ft
<b>12</b> Overall width	13.96 m	46 ft 1 in
<b>13</b> Clearance under lowest point in truck frame/propel gearcase	0.90 m	2 ft 11.5 in
<b>14</b> Operator's eye level	10.61 m	34 ft 10 in

## Dimensions – with Rope Crowd

Dipper payload (Available dipper payloads up to 109 tonnes (120 tons) when specified)	100 tonnes	110 tons
Dipper capacity	30.6-61.2 m <sup>3</sup>	40-80 yd <sup>3</sup>
Length of boom	20.4 m	67 ft
Effective length of dipper handle	10.9 m	35 ft 10 in
Overall length of dipper handle	14.3 m	47 ft

## Weights – with Rope Crowd

Working weight, with dipper and standard links	1 429 120 kg	3,150,670 lb
Net weight, domestic, without ballast or dipper	1 045 902 kg	2,305,820 lb
General-purpose dipper – 56 m <sup>3</sup> (73 yd <sup>3</sup> )	80 603 kg	177,700 lb
Ballast (furnished by customer)	302 614 kg	667,150 lb

- These weights will vary slightly depending upon dipper and optional equipment selection

## Main Structures – with Rope Crowd

### Crawler Mounting

Overall width 317.5 cm (125 in) treads, standard	12.73 m	41 ft 9 in
Overall length of mounting	11.43 m	37 ft 6 in
Overall width 355.6 cm (140 in) treads	13.5 m	44 ft 3 in
Total effective bearing area (317.5 cm treads)	57.13 m <sup>2</sup> 245 kPa	615 ft <sup>2</sup> 35.6 psi
Total effective bearing area (355.6 cm treads)	64 m <sup>2</sup> 219 kPa	689 ft <sup>2</sup> 31.8 psi
Number and diameter of rollers		
Lower: 16	79.4 cm	31.25 in
Lower rear: 2	106.7 cm	42 in
Upper	Slides	
Take-up tumblers diameter	162 cm	63.8 in
Number and pitch of treads: 94	50.8 cm	20 in

### Planetary Propel

Dual-motor independent drive

### Revolving Frame (Center Section)

Welded, impact-resistant steel

Length	8.38 m	27 ft 6 in
Width	3.68 m	12 ft 1 in

### Turntable

Forged rim, alloy steel swing rack pitch diameter	5.26 m	17 ft 3 in
Teeth external cut – face	24.13 cm	9.5 in
Tapered, forged alloy steel roller rails diameter	4.52 m	14 ft 10 in
Number of tapered rollers	50	
Tapered rollers diameter	27.31 cm	10.75 in

### Swing

Two planetary gearboxes, each driven by a vertically mounted motor, are mounted on either side of the revolving frame. Dual-output pinion shafts from each gearbox engage the swing rack.

### Hoist

A planetary gearbox with dual-output pinions provides the hoist torque transfer from the electric motor to the hoist drum gear.

# 7495 HF Electric Rope Shovel Specifications

## Lube System – with Rope Crowd

- Single-line system applies lubricant and grease via the PLC
- Six pumps (four for lubricant and two for grease) located in an insulated, double-walled lube room

## Electrical – with Rope Crowd

### Drive

IGBT Acutrol drive system

### Power Requirements

Voltage	3 phase, 50/60 Hz, 7200V
Average 15-minute demand	926-1297 kW
Peak power	3706 kW

- Other voltage options available to suit customer requirements

### Distribution System Requirements

Machine on separate system	4000 kVA
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### Main Electrical Systems

System voltage (nominal)	50/60 Hz, 7200V
Trail cable (furnished by customer)	SHD-3-#1/0 at 8000V
Transformer, auxiliary	350 kVA, 7200V primary
Lighting transformer	2 at 25 kVA 120/240V secondary

### Lights

- HPS lights on boom feet, top of A-frame, machinery house, lube room, control room, utility room and flood lights
- Incandescent lights on ground lights, walkways and operator's cab

## Front End – with Rope Crowd

### Boom

Boom	welded, impact-resistant steel	
Boom point sheaves	twin-grooved, flame-hardened	
Boom point sheave diameters	243.84 cm	96 in
Handle diameter	86.36 cm	34 in
Wall thickness (nominal)	7.62 cm	3 in

### Rope Data

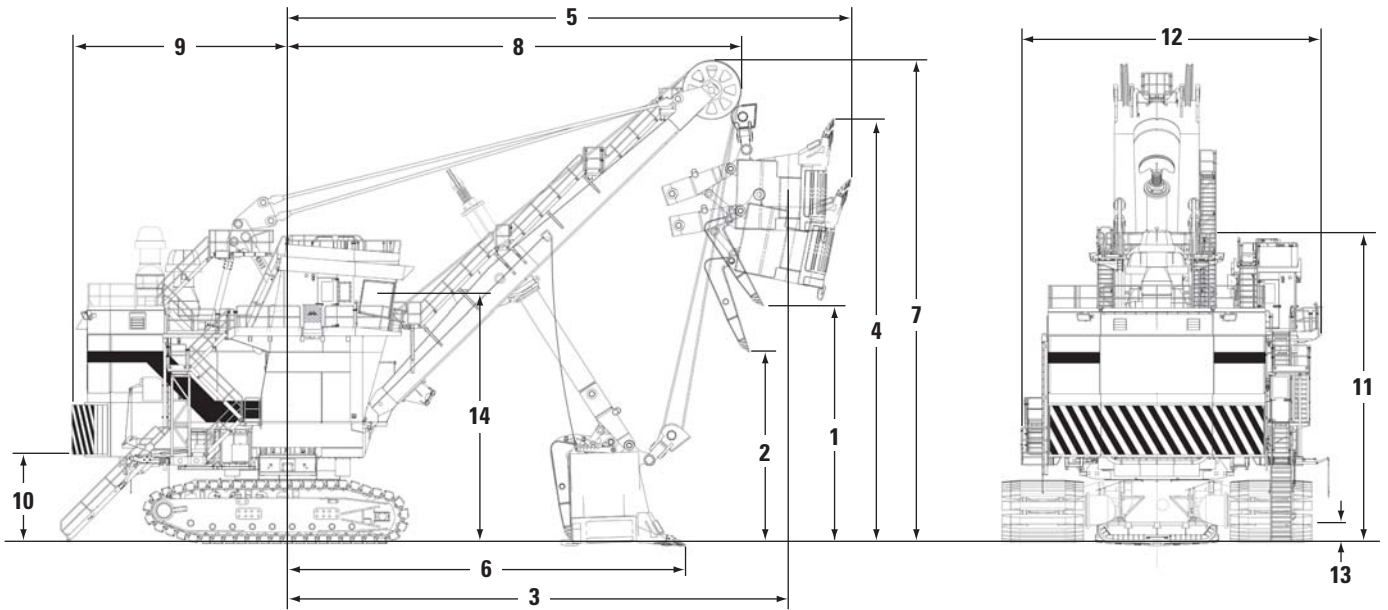
	No.	Diameter	Type	Construction
Hoist	2	69.8 mm (2.75 in)	twin dual	8 × 37
Crowd	1	63.5 mm (2.5 in)	single dual	8 × 37
Retract	1	63.5 mm (2.5 in)	single dual	8 × 37
Boom Susp.	4	82.6 mm (3.25 in)	equalized	struct. strand
Dipper Trip	1	19.1 mm (0.75 in)	single	7 × 25

### Crowd

Rope Crowd with crowd machinery located at the front center of the revolving frame, consisting of motor, brake, drum and gearing. Plastic-coated crowd and retract ropes are used to move the dipper handle fore and aft.

## Dimensions – with Rope Crowd

All dimensions are approximate.



### Optimal Working Ranges

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