HW300

Highwall Mining System

Weight (without Cutter Module)		
Machine Weight	225 000 kg	495,665 lb
Mine Mode Dimensions (without Cutter Module)		
Width	11.7 m	38.5 ft
Height	8.7 m	28.7 ft
Length*	20.3 m	66.5 ft

*Actual length dependant upon model configuration.

Operating Specification		
Maximum Penetration Capability	305 m	1,000 ft

Features

Low Cost Coal
With minimal support equipment and a three or four person crew, the HW300 is a highly versatile and efficient coal producer.

Safe Operation
With a three to four person crew operating directly from the pit floor, the entire mining cycle can be accomplished on the surface. The raised cab position provides excellent visibility to the ground crew as well as ensures that access around the machine is excellent.

Excellent Mobility
The highwall miner has four pivoting tracks that allow it to tram easily from entry to entry and discharges coal in tight spaces.

Operator Comfort
The air-conditioned cab offers an ergonomic, heated and pressurized environment where all controls are within the operator's reach.

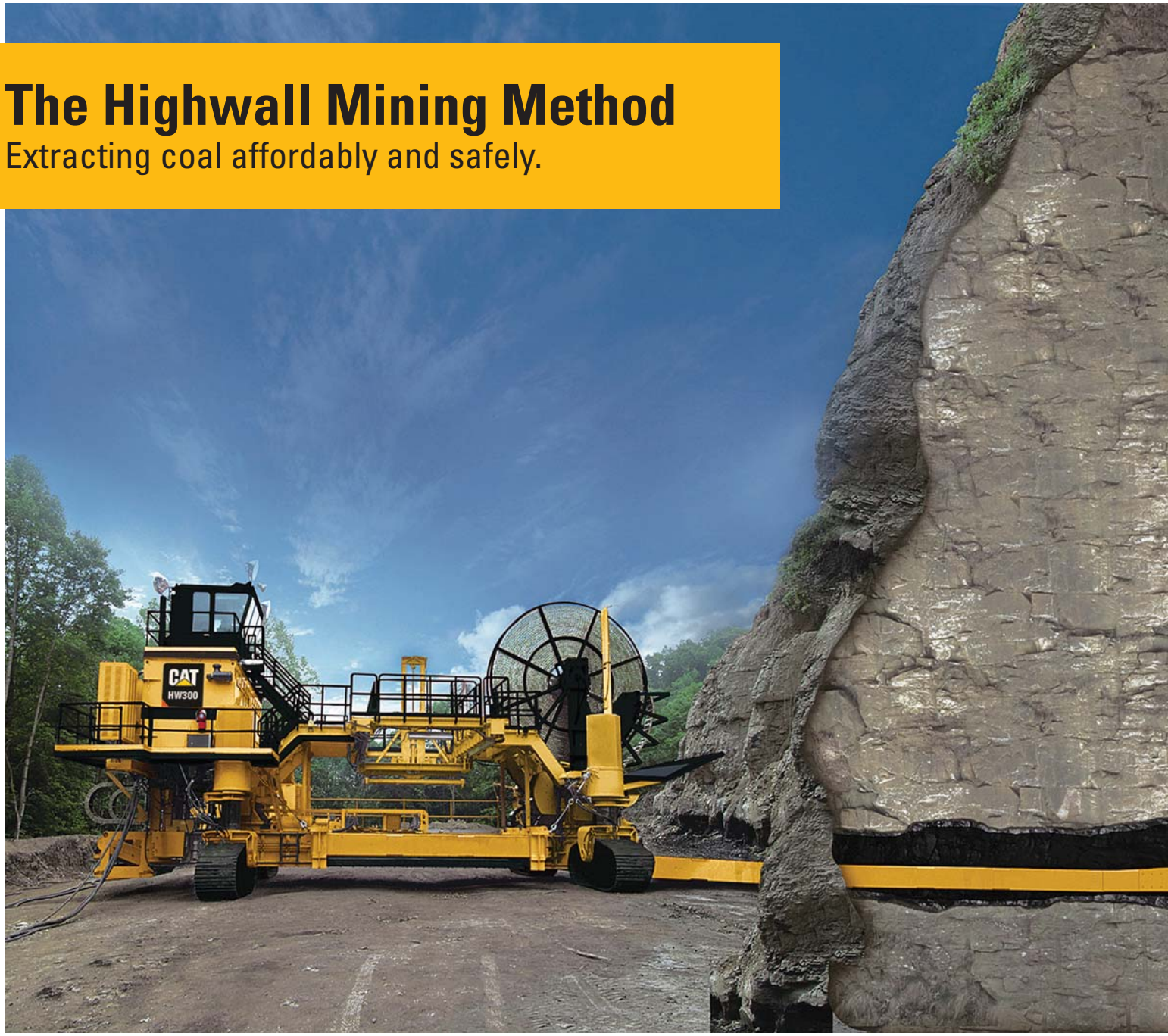
Easy Equipment Relocation
Part of the HW300's versatility is its ability to be disassembled into easily transported segments and moved between mine sites.

Contents

The HW300 produces high volumes of coal at very low costs. More importantly, it is safer than traditional underground mining, as it sends no one underground, and it works economically with a small crew and very little support equipment. It's versatile in its mobility and application, and it produces large quantities of coal at inherent ash levels. When you need to improve the recovery of your coal reserves, consider the Highwall Miner – consider the HW300.

The Highwall Mining Method

Extracting coal affordably and safely.



Feasibility Determination

You can begin your own feasibility study by visiting our site evaluation tool located on the Highwall Miner product page of *http://www.cat.com/en_US/products/new/equipment/highwall-miners.html.* From there, Caterpillar and its dealers can assist with highly skilled experts to determine if highwall mining may be right for you.

The Cat highwall mining system offers an innovative and efficient method for extracting coal from exposed seams in a multitude of applications.

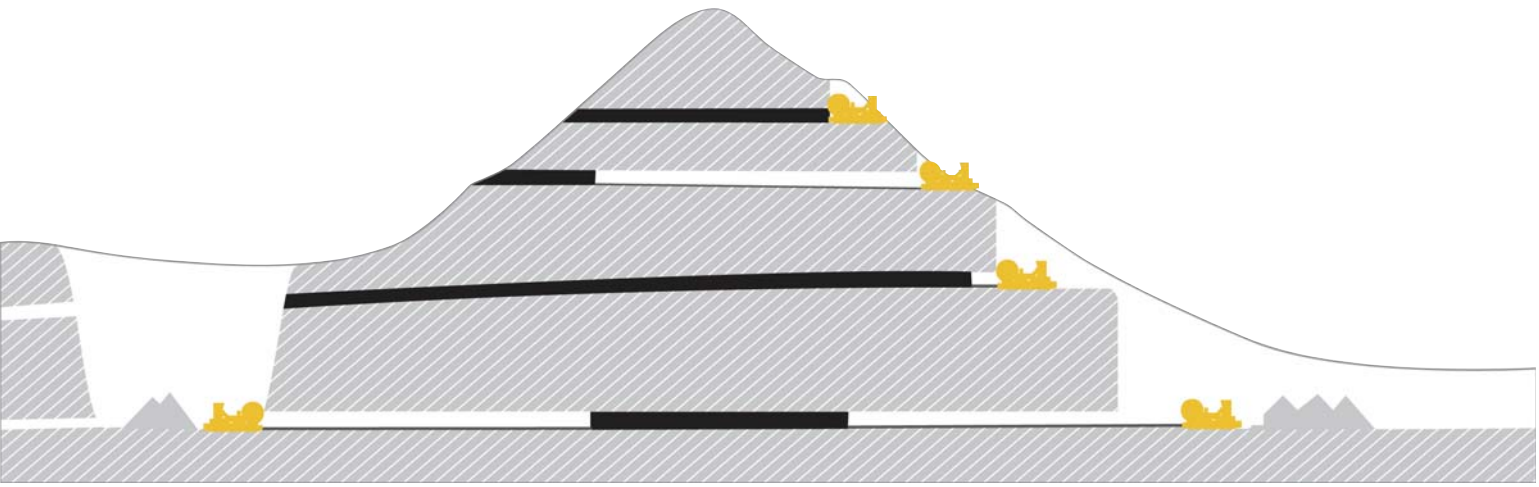
The HWM300 works on the pit floor or bench directly in front of the exposed seam. Up to 300 m (1,000 ft) long parallel rectangular “drives” are cut into the coal seam by means of the cutter head module and push beams (unmanned coal-conveying elements).

These push beams transport the cut coal internally via two counter rotating spiral conveyors (augers) back to the entry of the drive and then onto a stockpile.

The whole mining cycle is completed by a 3-4 man crew with no personnel ever going underground.

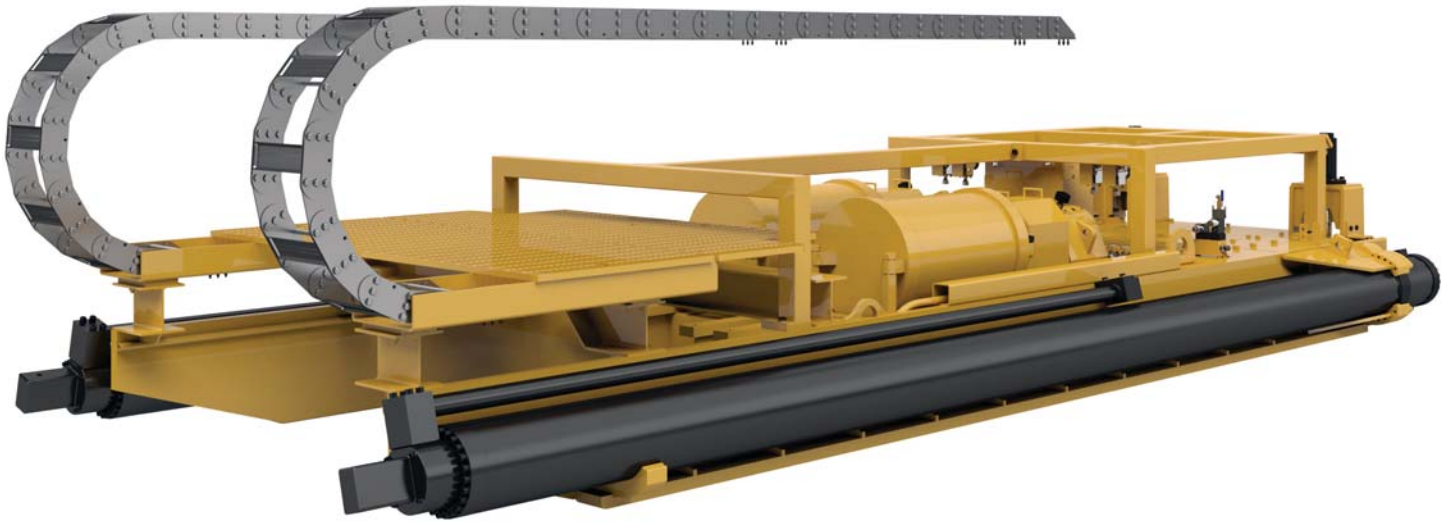
Whether you’re operating a trench, open cast or contour mine, the Cat highwall mining system can extract coal affordably and safely:

- **Open cast:** Highwall mining is used to mine coal from underneath the final highwall, when the strip limit is reached due to economic reasons or surface conditions
- **Contour mining:** In a mountainous area, the Cat highwall mining system can follow a coal seam along the side of the hill
- **Trench mining:** The unit mines coal from both sides of a purpose-prepared trench; this mining method is used when an open pit is not an option



Power Head

Providing the forces for optimal performance.

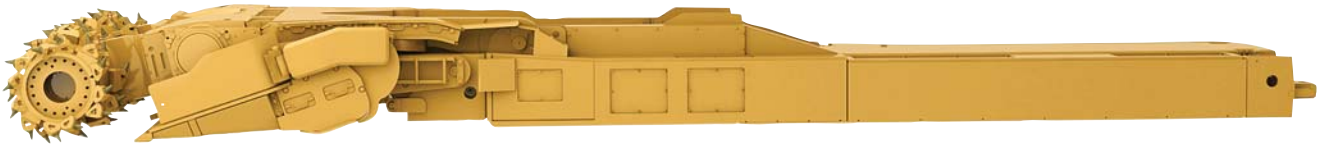


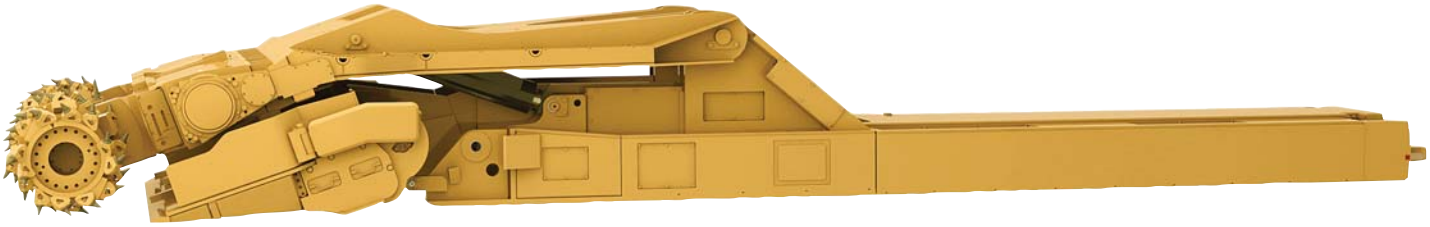
Heavy Duty Power Head Assembly

The power head propels the cutter module and push beam string forward using two hydraulically powered sump cylinders with a 6.86 m (22.5 ft) stroke. The power head also drives the augers which are located inside the push beams. The pushing force of 133 tonnes (147 tons) propels the cutter module to a depth of 300 m (1,000 ft) and the pulling force of 275 tonnes (303 tons) retracts it safely.

Cutter Modules

Proven technology for accurate cuts.





Versatility

Through appropriate Cutter Module selection the HW300 can be tailored to mine coal seams as low as 711 mm (28 in) or as high as 4500 mm (177 in).

Cutter Modules

Caterpillar offers four electric cutter modules: extra low seam, low seam, mid-seam and high seam. The cutter modules are interchangeable and quickly attached to the highwall mining system. The cutting cycle is fully automated, yet allows the operator to manually adjust the machine function using an ampere reading as the coal seam varies. This proven technology allows the cutter module to accurately follow the coal seam and produce a product near inherent ash levels.

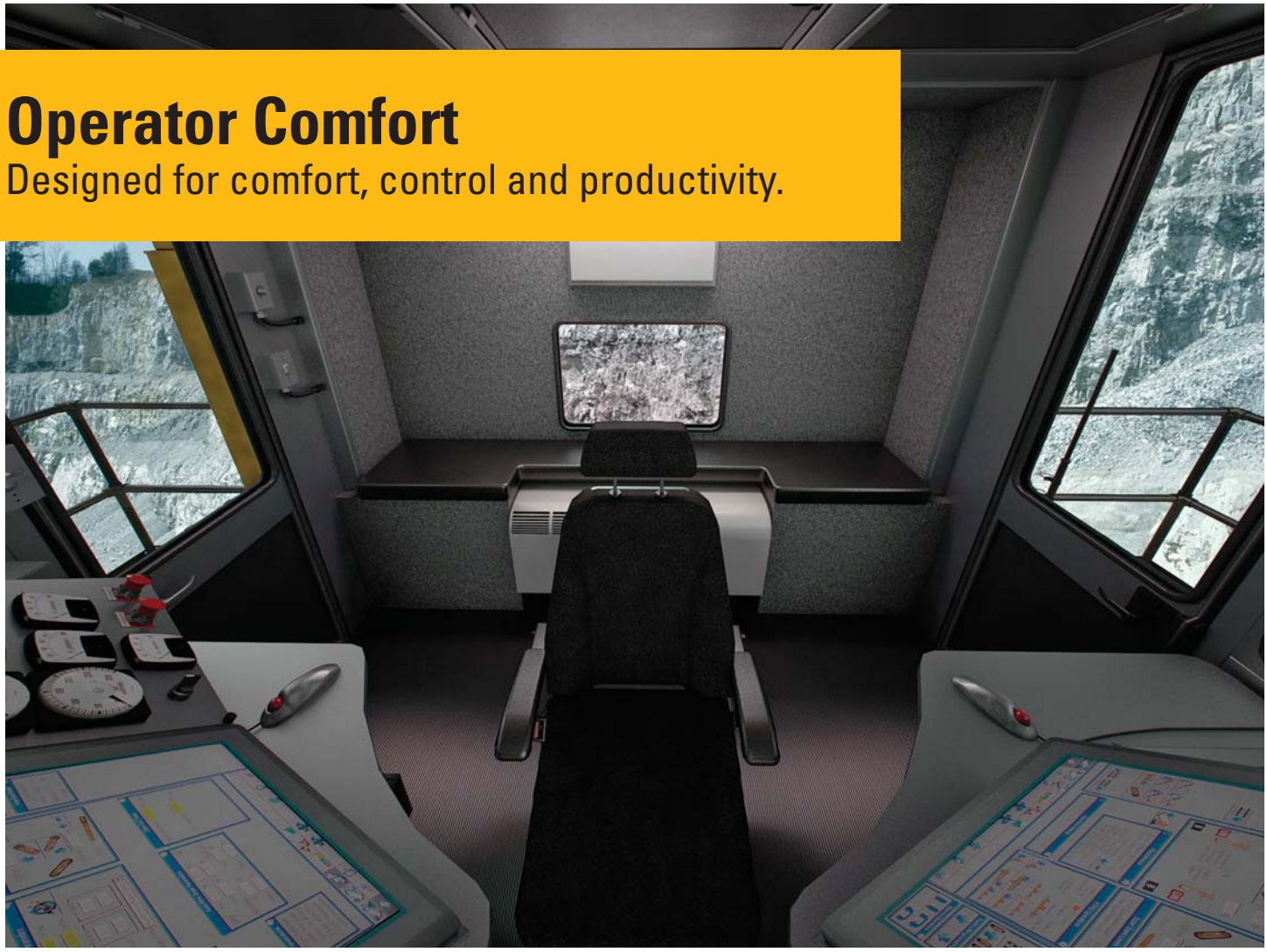
Advanced Technology

An optional Gamma Detection system can be used to guide the cutter module through the coal seam, leaving predetermined amounts of coal in the roof and floor. This system also allows the mining of coal in soft roof and/or soft floor situations.

Fiber optic, gyro based navigation and steering is also available as an option on the HW300. This provides operators with very precise cutter module location data in real time for enhanced cutter module steering and control of pillar width.

Operator Comfort

Designed for comfort, control and productivity.



Operator Comfort

- The Cat highwall mining system is equipped with a comfortable, climate controlled, pressurized cab that offers full line of sight to the highwall, strip pit, support staff and support equipment.
- The full suspension operator seat and the two user-friendly touchscreens create an ergonomic workplace, placing controls and system information at the operator's fingertips. The operator uses a computer mouse to run the machine and the graphics-based touch screens are language-neutral, employing globally recognizable icons.
- A programmable logic controller executes all inputs by the operator, manages any automatic features and provides comprehensive diagnostic capability.

Mobility

Improved maneuverability in tight spaces.

Excellent Mobility

- The Cat highwall mining system is a strong, self-propelled machine that operates on contour benches as narrow as 18 m (59 ft).
- It trams easily from entry to entry and discharges coal in tight spaces. An optional right-angle conveyor system discharges coal on the right or left side on narrow benches. It can also discharge onto a stacking conveyor system, where coal is moved to the center of the bench for stockpiling large volumes.
- Four heavy-duty, hydraulically-powered tracks articulate independently in two operating modes – mine mode and tram mode – and can rotate the machine 360°, which improves maneuverability in congested areas. Mine mode is used for moving parallel to the highwall, while tram mode is used when moving from pit to pit.

Push Beams

The backbone of the highwall mining system.

Dependable Push Beams

Cat® push beams are 6 m (20 ft) long, rectangular, reinforced steel box structures joined together to form a string, which connects the highwall mining system to the cutter module.

The push beam string is the backbone of the machine; pushing and pulling the cutter module in and out of the coal seam.

The push beam conveys mined coal internally via two counter rotating spiral conveyors (augers). The enclosed beam protects the coal from contamination and supports the hose chain that supplies control and power to the cutter module.

Other Cat push beam advantages include:

- A strong method of attachment that is secured and disengaged quickly
- A push beam connection that allows the string and cutter module to navigate through coal seam rolls and undulations, even under tough pushing and pulling conditions
- A simple design free of electrical and hydraulic connections
- Push beams can be stacked six high, reducing the amount of storage area required in narrow work sites

Reel and Chain

Storage and protection of cables and hoses.

Rugged Reel and Chain

A steel-armored hose chain stores and protects all electric power cables, hydraulic and coolant lines, and the control cable to the cutter module. The hose chain is automatically unrolled and retracted on a reel during mining.

Control System

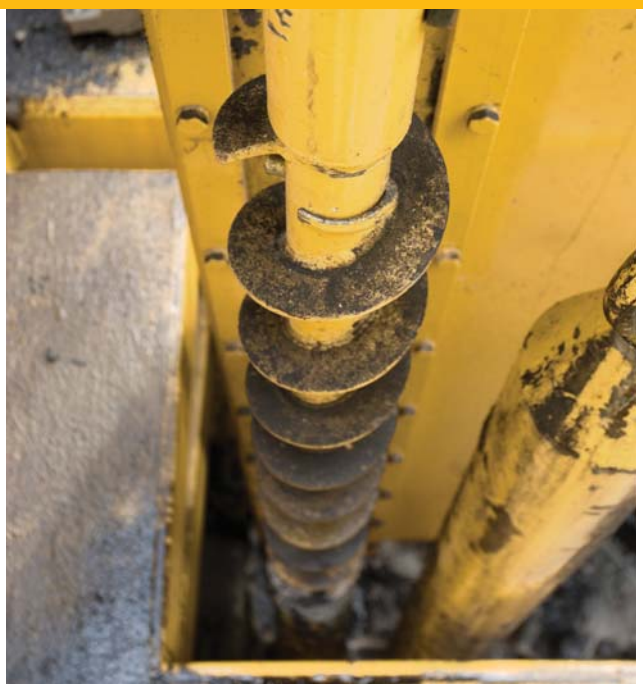
Keeping the operation productive.

Control System with Diagnostics

The Cat highwall mining system's operation is controlled by a Programmable Logic Controller, which provides reliable performance for greater uptime. A comprehensive diagnostics system, including troubleshooting assistance, streamlines maintenance procedures.

Anchoring System

Maximum stabilization even under the toughest conditions.



Anchoring System

Two drills mounted on the front of the machine are used to drill into the pit floor up to 2.4 m (8 ft). High-strength pins are then inserted through the base frame into the pit floor to help stabilize the machine and to maintain its accurate position, even under tough pushing and pulling conditions.

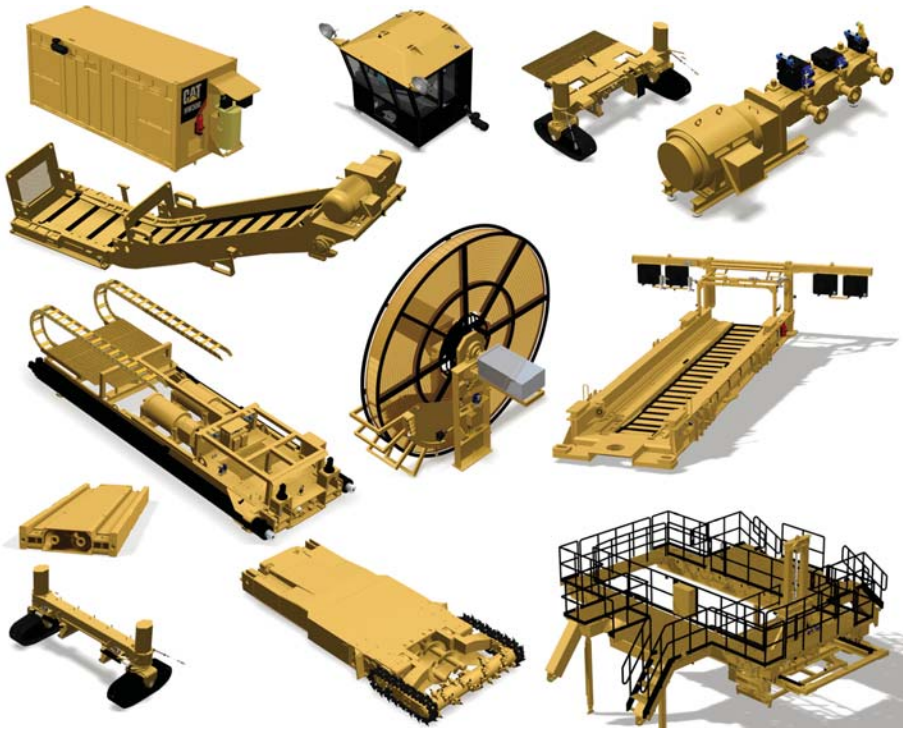
Equipment Relocation

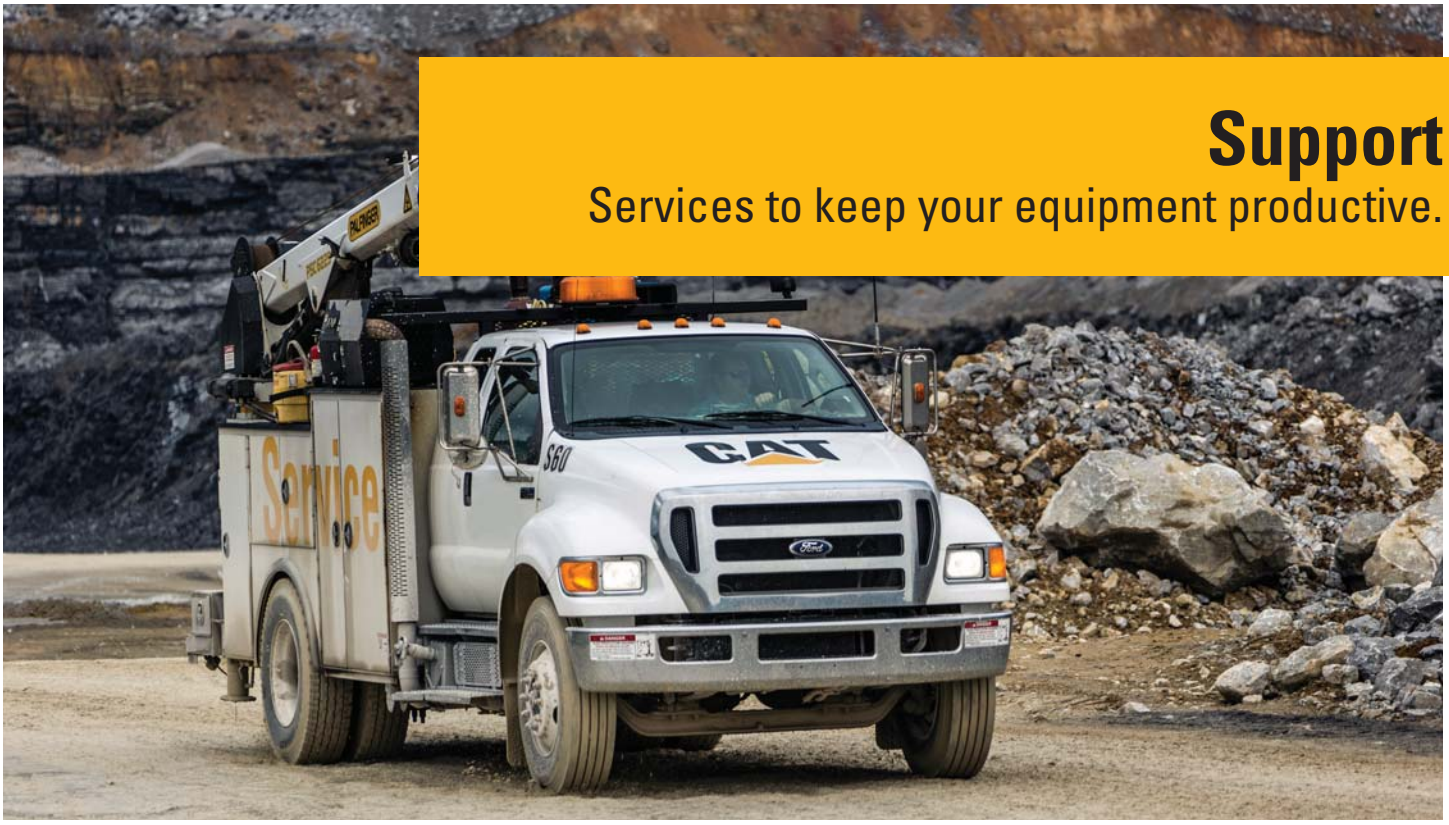
Convenient modularity for quick assembly.

Easy Machine Relocation

For quick relocation over long distances, the Cat highwall mining system can be taken apart in modules. Rapid disassembly and reassembly is facilitated by convenient hydraulic and electrical connectors, and all modules are sized for transport using regular public roads.

Depending on local conditions, the system can also be transported between sites and without disassembly by heavy haul trucks.





Support

Services to keep your equipment productive.

Product Support

Parts and service support for the HW300 are never far away with the global Cat Dealer Network. You can count on our dealers' skill and knowledge for quality maintenance and high machine availability. Caterpillar and dealer personnel are also ready to help evaluate any potential mine site and its coal seam.

Caterpillar can arrange operational and technical training which covers every aspect of the HW300 Highwall Miner. A two-week training program is offered to new customers and to existing customers as a refresher.

A site-evaluation tool is available on *cat.com* to help classify the geology before considering this mining system.

Financing

Whatever your needs, Cat Financial has the financing solution that will help you expedite your purchase and get your equipment on the job, fast. We offer quick and easy financing, with customized payment plans. You chose Cat equipment because you know Caterpillar offers reliable, productive, and powerful machinery. Now, choose Cat Financial to help grow your business.

Safety
Our first priority.

We've Built Important Safety Features into the HW300

- Machine mounted lighting covers the entire machine and the surrounding work area.
- Exterior cab mounted cameras.
- Laminated, tinted safety glass that reduces glare and prevents shattering.

Everywhere You Look…the Cat HW300 Highwall Miner is Built for Safety

- FOPS certified.
- Seat is adjustable on three axis points for comfort and ergonomics.
- Remote wireless operation is possible.
- Strong and extensive work platforms and hand rails.
- Lockable gates restrict access to the hose reel area.
- Walk areas and steps have serrated grating for traction.
- "Pendant" controls operate the second generation push beam transfer mechanism (PTM-2) providing space and limiting engagement with moving equipment. Crew never works below suspended push beams.
- When moving heavy push beams, positive lock lift hooks are used to securely hold the load. Beams are joined with two simple pins. No high-voltage or fluid connections required. An ergonomically- designed extraction tool helps remove the pins and keeps the crew from excessive bending and lifting throughout the shift.
- The HW300 is designed for immediate shut down by means of emergency stop switches (also called e-stops) strategically located around the machine.
- An Uninterruptable Power Supply (UPS) ensures the machine stops safely, that important data is stored and emergency lighting is activated to help the team safely evacuate if needed. Lights can also be timed in non-emergency situations to stay on for a set period after machine shut down- providing a well-lit exit.
- The HW300 has dust suppression at the power head, the coal discharge and along chain conveyor transition points. The cab and key compartments with sensitive equipment are slightly-pressurized to keep dust out – An exhaust fan inside the hydraulic compartment helps with air flow and venting.
- The extra low seam cutter module grease take up cylinders – reduce the effort, time and equipment needed to adjust and tension the chain.
- Blowback guard on machine front provides protection in the unlikely event of a methane explosion underground.
- Overhead structure enhances safety for those working at the front of the machine.
- Automatic fire suppression for electrical controls and hydraulics installed in the housing compartment.

HW300 Highwall Mining System Specifications*

Environmental and Operational Conditions

The Cat HW300 is designed for following environmental and operating conditions:

Mine Application	Trench Application Open Pit Mining Contour Mining
Ambient Temperature	–30° C to +35° C (–22° F to 95° F) Arctic and Tropical Packages are optional
Pit Floor Gradient	8 degrees nominal in any direction, 10 degrees maximum in any direction for traveling
Maximum Seam Gradient	8 degrees down dip relative to horizontal (Level side-to-side, pit floor prepared at 3 degrees)

Power and Consumption

Electric Power (Installed) 995/460 VAC, 50/90 Hz Mid/High Seam Cutter Module and Right Angle Discharge Configuration

			Power (ea)		Power (Total)	
Function	**Qty**	**Volts**	**kW**	**Hp**	**kW**	**Hp**
Cutting Motors – 60 Hz	2	995	179	240	358	480
Cutting Motors – 50 Hz	2	995	149	200	298	400
Gathering Motors – 60 Hz	2	995	34	45	67	90
Gathering Motors – 50 Hz	2	995	41	55	82	110
Power Head Auger Motors	2	995	373	500	746	1,000
Hydraulic Pump Motor	1	995	224	300	224	300
Base Frame Conveyor Motor	1	995	75	100	75	100
Right Angle Conveyor Motor	1	995	75	100	75	100
Stacking Conveyor Motor (Maximum) (Customer Equipment)	1	995	75	100	75	100
Cooling Fan Motors	6	460	1.5	2	9	12
Water Circulating Pump Motor	1	460	7	10	7	10
Hydraulic Oil Circulating Pump Motor	1	460	11	15	11	15
Water Spray Pump Motor	1	460	6	8	6	8
Total Connected Power – 60 Hz	**19**				**1651**	**2,215**
Total Connected Power – 50 Hz	**19**				**1607**	**2,155**

Power for the Miner

The highwall miner can be powered directly by mine power, or by a self contained generator system where connections to the utility grid is not practical.

Water Consumption

A closed loop cooling system, alleviates the need for water to cool the machine. In applications where water is necessary for cutting, a cutter module spray option is available. Water consumption during the mining operation is an average of 1000 L (264 gal) per hour (estimate).

General Specifications

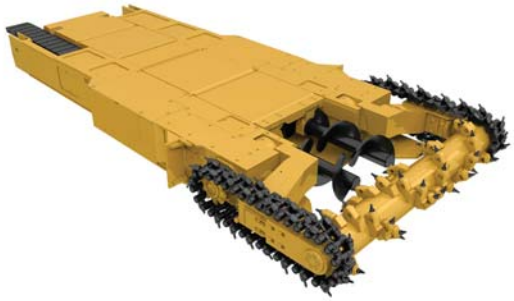
General Specifications	All dimensions and weights are approximate and depending on final specification.
Machine Dimensions while Mining	Width: 11.7 m (38.5 ft) Height: 8.7 m (28.7 ft) Length: LPCM: 20.3 m (66.5 ft) Mid-Seam CM: 21.3 m (70 ft)
Machine Dimensions while Tramming	Width: 7.7 m (25.3 ft) Track Width Height: 9.1 m (30 ft) Length: LPCM: 20.3 m (66.5 ft) Mid-Seam CM: 21.3 m (70 ft) Minimum road width for overhanging structure: 9.2 m (30.1 ft) with right-angle conveyor removed.
Weight	HWM without cutter head: 225 000 kg (495,665 lb) Weight: 5330 kg (11,750 lb) – 54 pieces

**For specific configurations please contact your dealer.*

HW300 Highwall Mining System Specifications*

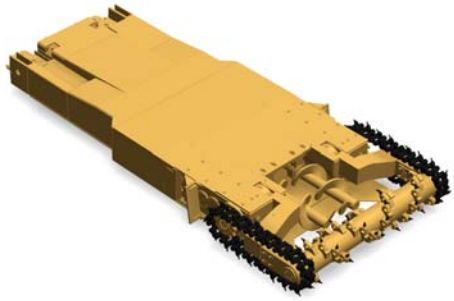
Extra Low Profile Cutter Module (XLPCM)

Approximate Weight	23.1 mt	51,000 lb
Drum Diameter	648 mm	25.5 in
Cutting Width	2946 mm	116 in
Cutting Height Above Grade	1549 mm	61 in
Cutting Height Below Grade	191 mm	7.5 in
Minimum Recommended Seam Height	711 mm	28 in



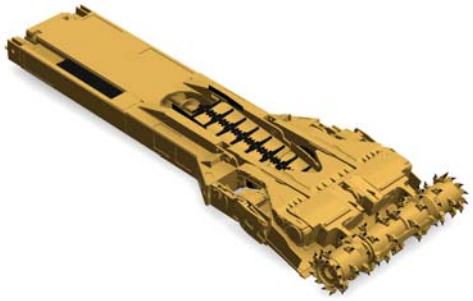
Low Profile Cutter Module (LPCM)

Approximate Weight	23.1 mt	51,000 lb
Drum Diameter	648 mm	25.5 in
Cutting Width	2946 mm	116 in
Cutting Height Above Grade	1575 mm	62 in
Cutting Height Below Grade	203 mm	8 in
Minimum Recommended Seam Height	762 mm	30 in



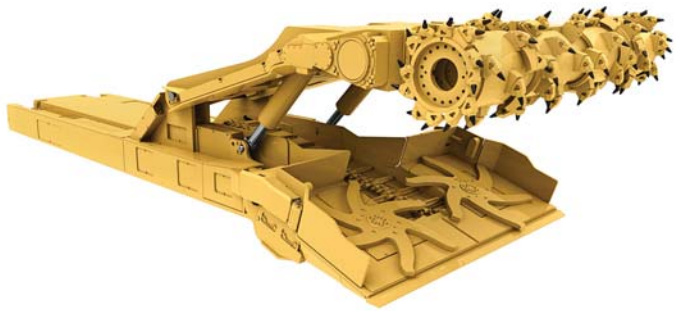
Mid-Seam Cutter Module

Approximate Weight	42.8 mt	94,400 lb
Drum Diameter	965 mm	38.0 in
Cutting Width	3505 mm	138 in
Cutting Height Above Grade	3060 mm	120.5 in
Cutting Height Below Grade	230 mm	9 in
Minimum Recommended Seam Height	1200 mm	47.2 in



High-Seam Cutter Module

Approximate Weight	48.5 mt	107,000 lb
Drum Diameter	965 mm	38.0 in
Cutting Width	3505 mm	138 in
Cutting Height Above Grade	4494 mm	176.9 in
Cutting Height Below Grade	243 mm	9.6 in
Minimum Recommended Seam Height	2400 mm	94.5 in

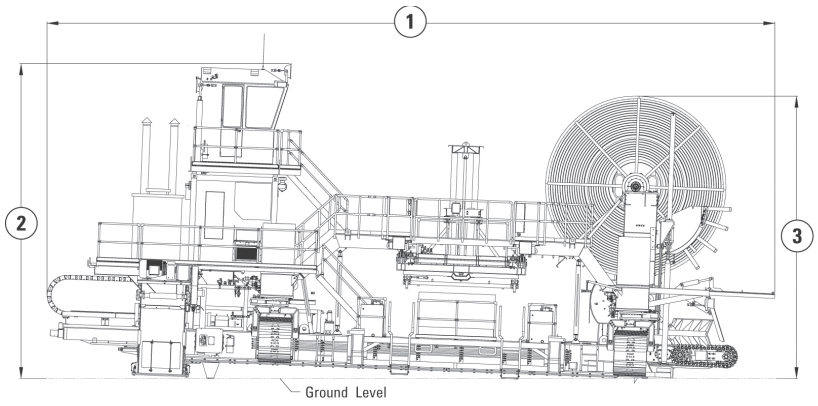


**For specific configurations please contact your dealer.*

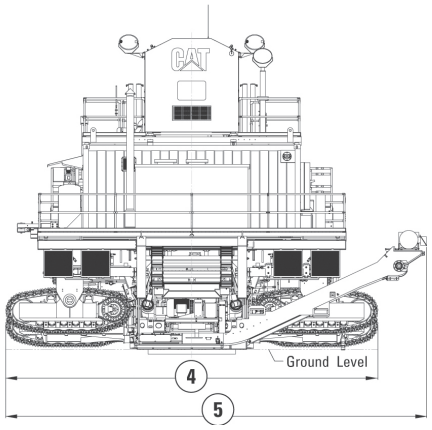
HW300 Highwall Mining System Specifications*

Dimensions

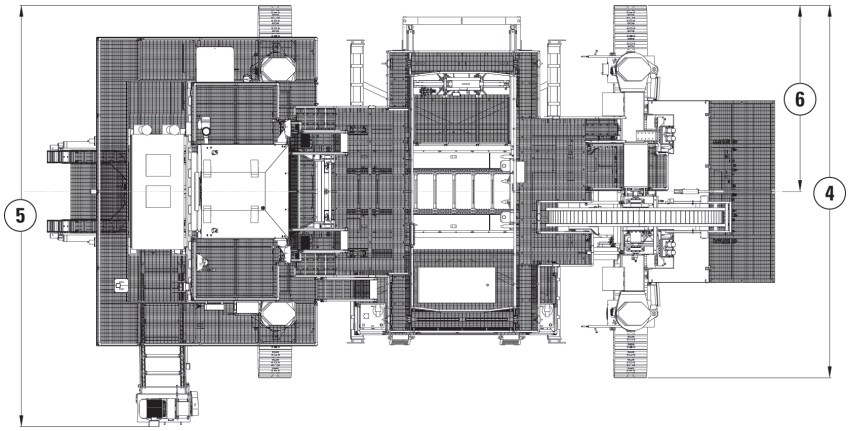
All dimensions are approximate.



Right Side View



Rear View



Top View

	HW300	
1 Overall Length	20 278 mm	66.5 ft
2 Overall Height	8743 mm	28.7 ft
3 Hose Reel Height	7844 mm	25.7 ft
4 Track Width	10 369 mm	34.0 ft
5 Overall Width	11 730 mm	38.5 ft
6 Half Track Width	5185 mm	17.0 ft

**For specific configurations please contact your dealer.*

Optional Equipment

Optional equipment may vary. Consult your Cat dealer for details.

GAMMA DETECTION SYSTEM

- Used to assist the operator as the cutter module is guided through the coal seam, leaving predetermined amounts of coal in the roof and floor. This system also allows the mining of coal in soft roof and/or soft floor situations.

ARCTIC PACKAGE

- For extreme-cold climates, this package extends the operating temperature to –40° C (–40° F).

RIGHT-ANGLE DISCHARGE

- This feature discharges coal to the right or left of the machine.

PUSH BEAM GRAPPLE

- This tool is available from the Cat dealer and mounts to the front of a wheel loader to provide safe and efficient transportation of push beams to and from the highwall mining system.

GENERATOR SET

- A self-contained generator system is an option that can be sourced from the local Cat dealer. It provides electrical power to the highwall mining system in remote locations where connection to a utility grid is not practical.

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

AEHQ6802-02 (07-2016)
Replaces AEHQ6802-01

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