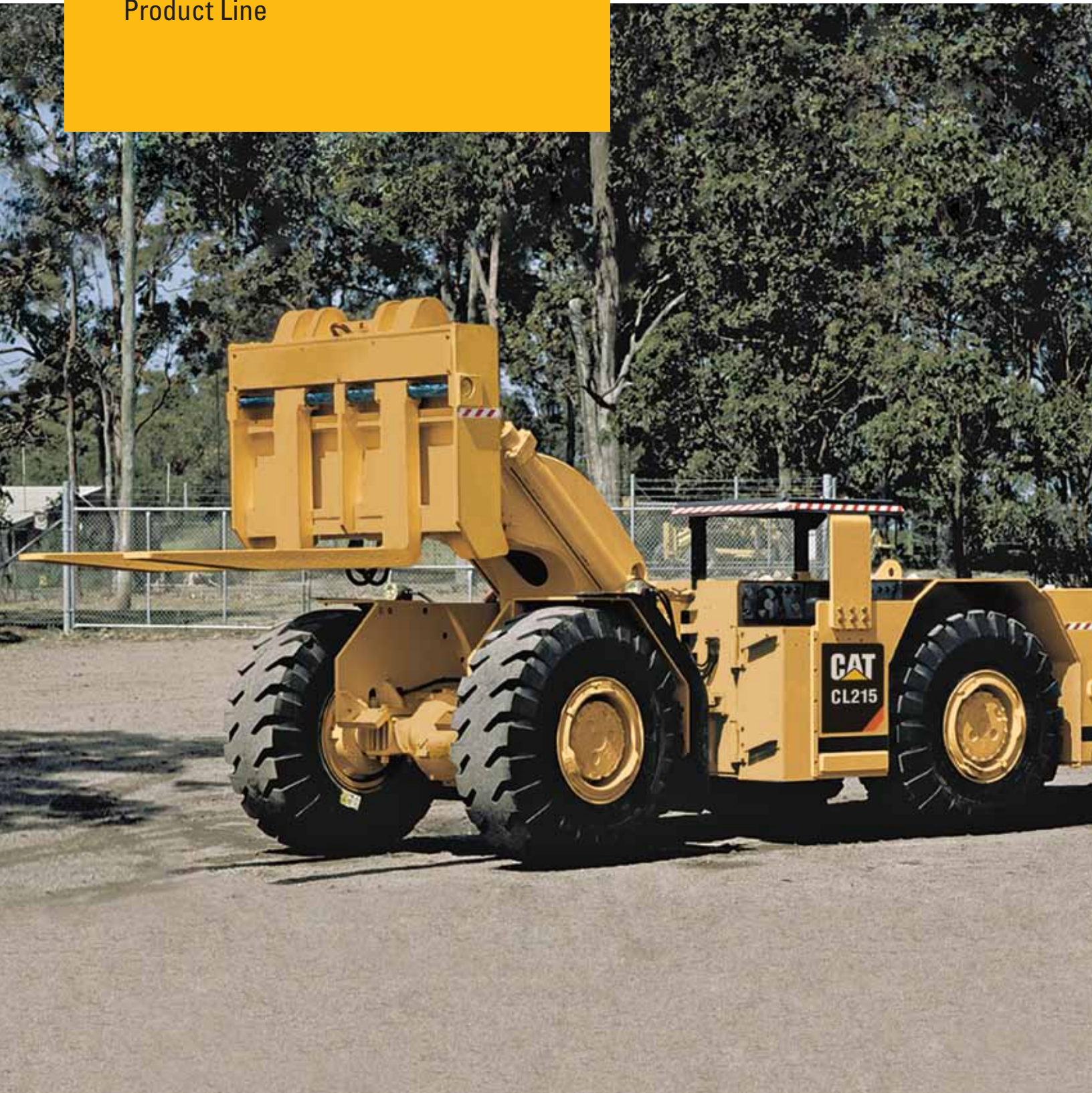


LHD Vehicles

Product Line





Load Haul Dump Diesel Multipurpose Vehicles

We have a long history of designing and manufacturing diesel-powered utility vehicles for various applications in underground mining industries. Our machines are designed to achieve maximum flexibility and maintain high productivity at minimum costs.

Productivity at Work

Cat® LHD vehicles can be used for a wide range of applications: from general mine transportation and maintenance work to longwall installations and relocations, from cabling and piping installation to stonedusting, including support to equipment contractors and civil engineering projects. There is also a broad range of accessories that can be attached to each of the vehicles to maximize flexibility in operation.

Equipped with important safety features as standard, they combine smart geometry with powerful thrust, high

breakout forces, intuitive and responsive controls, and high tramming speeds. High operation efficiency and short, fast cycle times result in optimum productivity and a low cost per tonne.

All LHD vehicles in the range share a number of common product benefits, keeping them at the leading edge of underground diesel utility vehicle technology.

We have global approval for the use of our machines. They are used in mines in Australia, China, India, Norway, Russia, South Africa, United Kingdom and the US.

The diesel-powered Cat® LHD vehicles are developed for the toughest of underground applications with overall production economy, safety and reliability in mind.



The Models

Compact Loader

The compact loader, configured as either CL110 10 tonnes (11.02 tons) or CL115 13.5 tonnes (15 tons), is designed to operate in the sub 10 tonne (11.02 ton) capacity market and shares many features with the rest of the Cat diesel product portfolio. This makes it easily recognizable as a Cat model in terms of design and manufacture. The machine has a reduced presence within the roadway when compared to any other modern machine currently available on the market today, making its size and carrying capacity a benchmark in the industry. The design and manufacture of the Compact Loader is modular, allowing the customer to choose more than just the attachments. Customers may also choose cab height and location, engine, and lift capacity, to name a few.



Compact Loader

SU488 LHD

Operations with clearance as low as 1.40 m (58 in) can utilize the SU488 LHD underground while maintaining a 10.8 tonne (12 ton) lift capacity. The SU488 LHD can quickly go from bucket to other capabilities and applications utilizing different RAS (Rapid Attachment Systems). Speed range is up to 19.3 km/h (12 mph) with a multi-speed transmission. Coupled with a Cat dry scrubber system, the SU488 LHD can effectively reduce common concerns of exhaust temperatures. The LHD model is constructed with a 114 kW (153 hp) Deutz 1013 and is available with different power pack options depending upon usage.



SU488 LHD

CL10

The CL210 operates in the 10 tonne (11.02 ton) capacity LHD and utility vehicles segment and can be supplied with either a Rapid Dump 'Z' link or parallel lift arrangements and a variety of Cat RAS attachments. In combination with the SH150 trailer, the CL210 can be used for rapid transport of roof supports.



CL210

CL15

The CL215 is the 15 tonne (16.53 ton) heavy-lift LHD and utility vehicle in the Cat range. Like the CL210, it can be used as a shield mover in combination with the SH150 trailer, allowing for the LHD to become a true utility vehicle with multifunction capabilities.



CL215



CL10 compact loader with RAS bucket attached

A Full Range of Benefits

Highly Productive

Compact high-power design, ergonomic controls and high operation flexibility with a range of accessories combine to ensure that your diesel LHD offers great productivity and return on investment.

High Reliability, Low Cost

To ensure low life-cycle costs and high availability, all vehicles use tried-and-tested, commercially available powertrain components that offer high reliability and availability with high fuel economy. Components are of the highest possible quality and meet or exceed operational and design requirements. The use of reliable and powerful diesel engines ensures maximum power in a compact design.

Highly Maneuverable

The vehicles feature a central articulation joint that combines oscillation and articulation with optimum maneuverability and stability.

Compact

Space is at a premium in underground roadways, so the vehicles are designed to be compact, with a minimal profile and roadway presence. They are also designed to be cost-effective in operation and to meet the user's need for the safest maximum possible capacity, speed and power.

Rugged

Engineering excellence with computer-assisted, mine-specific design and Finite Element Analysis, quality assurance at every stage, and the use of high-performance components and materials ensure that your vehicle is built for long service life in the harshest mining environments.

Environmentally Responsible

Because they work underground, the vehicles are designed to operate with the lowest heat rejection and lowest possible emissions with exhaust cooling and particulate filtering systems that meet the highest standards.

Multipurpose

The Rapid Attach System (RAS) allows a range of accessories to be fitted, thus enhancing the flexibility of the vehicles in operation. RAS allows the use of accessories from forks and buckets to jib cranes and reelers, as well as many others.

Compliance

Compliance to regional regulations and guidelines is achieved by using a variety of engine and exhaust conditioner packages. Cat equipment is compliant to Australian Standard MDG guidelines, MSHA (USA), MA (China) and DGMS (India) legislative regulations for underground coal mining. Caterpillar also supplies diesel equipment for non-coal mining applications.



Operator Safety and Comfort

The cockpit design features ergonomic, intuitive controls and optimum visibility and safety. This means that operators already trained on one machine can quickly learn to use the others in the range. All vehicles are compliant with current and anticipated future safety requirements, such as exhaust filtering, falling object protection and maximized visibility. Pilot hydraulic- and electronic-controlled vehicles are available with the option of dials and gauges or an LCD instrument cluster. Demanding working conditions require that the operator is comfortable for the entire shift, so suspension seats and restraint systems have been selected to assist in fatigue management and increase safety.

Common Features

Engines

All machines can be supplied with various diesel engine packages suited to the customer's requirements. Like all components, our engines are industry-recognized and accepted. This means high quality, excellent availability and economy of spare parts, and, as a result, high service availability. A broad range of mechanical and electronic engine packages are available, allowing vehicles to be tailored to specific applications or to meet regulations.

Exhaust Systems

Caterpillar can offer the underground mining industry the choice of either a wet exhaust scrubber system or a dry particulate filter system. Both the wet and dry exhaust scrubbers employ a particulate filtration system with an inline purifier and catalytic converter. Caterpillar has designed a proprietary diesel exhaust solution to meet the highest emissions standards for the health and safety of personnel. The replaceable Cat particulate filter captures particulate matter, preventing its release into the mining atmosphere. A heat exchanger or wet bath scrubber is used to reduce exhaust-gas temperature and a catalytic converter reduces gaseous emissions. The exhaust system is monitored by the Cat DCS electronic shutdown system, which prevents the machine from being operated in unsafe conditions like low water levels or high exhaust system temperatures. Both dry and wet exhaust packages are approved for underground coal mine operation.

Cooling Systems

Caterpillar offers radiator units in either vertical or horizontal configurations. The dry scrubber exhaust system features a dual independent cooling system with one for the exhaust system and another for the engine system, providing a balanced coolant flow through both systems. The wet-bath-exhaust-equipped machine has a single cooling system for the engine cooling and the exhaust gas is cooled by constant consumption from the exhaust scrubber reservoir.



Wet exhaust scrubber system

Dry exhaust scrubber system



Electrical Systems

The base specification LHD electrics consist of four flameproof lights powered by a flameproof Cat alternator and a DCS intrinsically safe engine monitoring and shutdown system. There are a number of additional options available for explosion or non-explosion protected machines that include:

- LCD graphical display in flameproof enclosure
- Dimming and directional control of the lights
- Solenoid-operated valve banks with spool monitoring
- Electronic shift transmission
- 12 V or 24 V electrical system
- Reversing camera and display in flameproof enclosure
- Electronic joystick control of hydraulics

Ease of Service

All Cat LHD machines can have their operation safety checks performed by the operator in minutes at the beginning of the shift. To return a high service availability, the equipment design has been aimed towards reducing machine downtime during maintenance and servicing tasks.



Vertical radiators

Horizontal radiators



Access to Attachments

Rapid Attach System (RAS)

The RAS system makes an accessory change a safe, one-man operation, allowing a broad range of accessories to be fitted in moments without removing the backing plate or the operator having to leave the cab. A fifth-wheel trailer hitch can also be fitted so that the SH150 can be used for moving roof supports.

Range of Attachments

- Hydraulic side shift forks for pan transportation
- Ejector plate bucket for scoop operations
- Lube pod for miner support, diesel/battery fleet support
- Jib cranes for drive head motor replacement
- Work platform for pipe, cable or roof repair
- Reeler unit for belt/cable/AFC/BSL/Bretby
- QDS attachment – allows use of third-party accessories

SH150 Roof Support Trailer

The SH150 roof support trailer turns your LHD into a high-speed shield hauler capable of carrying 50 tonnes (55.12 tons) and shields up to 2 m (6.56 ft) wide with an integrated hydraulic loading winch. The trailer is designed for moving roof supports and chocks. A hydraulic assist drive system can be fitted as an optional upgrade to support areas of inconsistent floor and roadway conditions for intermittent operation. A rated hydraulic winch is available for loading roof supports and two in-floor load positional cylinders can be used for assistance with unloading. With spring-applied hydraulic brakes and solid rubber wheels, the trailer is hydraulically lowered and raised for easy loading and unloading of transport. The trailer has a capacity of 30 000 or 50 000 kg (66,139 or 110,231 lbs) and can carry a 2 m (6.56 ft) roof support. The SH150 can be towed by the CL210 and CL215.



SH150 trailer



RAS: quick pick up and release of attachments



RAS adapter plate



Work platform



Belt/cable reeler/winch



Fuel and Lubrication Module

RAS Attachments



Side Shift Fork Tynes



Ejector Bucket



Belt Reeler
Can be used as cable reeler
or low tension winch



Fuel and Lubrication Module



Man Work Basket



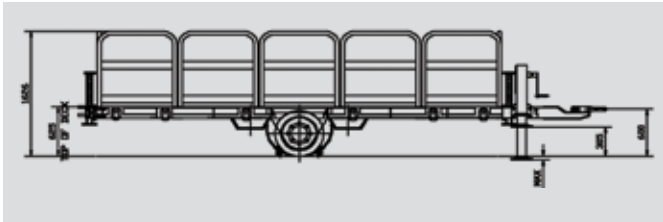
Jib Crane



Trailer carrying a roof support

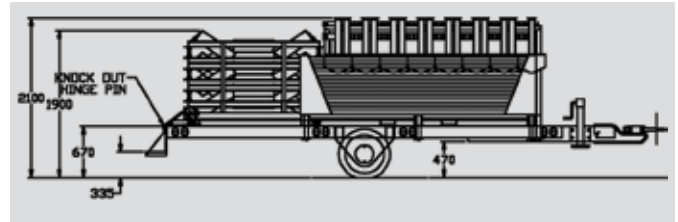
General Purpose Trailer

With a tare mass of 3 tonnes (3.31 tons), the general purpose trailer can carry loads of up to 7 tonnes (7.72 tons). With a simple ladder-frame design, the width of the trailer can be selected to suit mine drive heading sizes. The flat deck and gate railing system allow flexible loading and unloading from either side with forks or handling devices.



Conveyor Structure Module

Fitting on top of a standard general purpose trailer, the conveyor structure module allows all components for a certain section of conveyor to be loaded and stored together. This modular approach not only speeds loading and unloading, but prevents damage to and loss of valuable components.



Diesel-Powered LHD Vehicles

	CL110	CL115	CL210	CL215	SU488 D LHD
Load capacity	5.0 to 10 tonnes 5.51 to 11.02 tons	13.5 tonnes 15 tons	10 tonnes 10.02 tons	15 tonnes 16.53 tons	10.89 tonnes 12 tons
Unladen weight	19 tonnes 20.94 tons	23.4 tonnes 26 tons	23 tonnes with bucket 35.35 tons with bucket	29 tonnes with bucket 31.97 tons with bucket	23.4 tonnes 26 tons
Width (nominal)	2 000 mm 78.74 in	2 362 mm 93 in	2 300 mm 90.55 in	2 550 mm 100.39 in	2 921 mm 9 ft 7 in
Height	1 650/1 950 mm 94.96/76.77 in	1 499 mm 59 in	1 980/2 052 mm 77.95/80.79 in	1 900/2 150 mm 74.80/84.63 in	1 003 mm 39.50 in
Length	7 500/9 780 mm 295.28/385.04 in with/without bucket	7 696 mm 25 ft 3 in	7 370/9 650 mm 290.16/379.92 in with/without bucket	8 200/10 430 mm 322.83/410.63 in with/without bucket	8 128 mm 26 ft 8 in
Articulation	45°	45°	45°	45°	40°
Oscillation	8°	11°	8°	8°	15°
Transmission	4 speed transmission with electronic option	4 speed transmission with electronic option	4 speed transmission with electronic option	4 speed transmission with electronic option	4 speed transmission with electronic option
Brakes	SAHR	SAHR	SAHR	SAHR	SAHR
RAS/QDS attachments	yes	yes	yes	yes	yes
Optional equipment	RAS attachments	RAS attachments	RAS attachments	RAS attachments	RAS attachments

LHD Vehicles – Product Line

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

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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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