

Cat[®] EL2000

LONGWALL SHEARER

Specifications

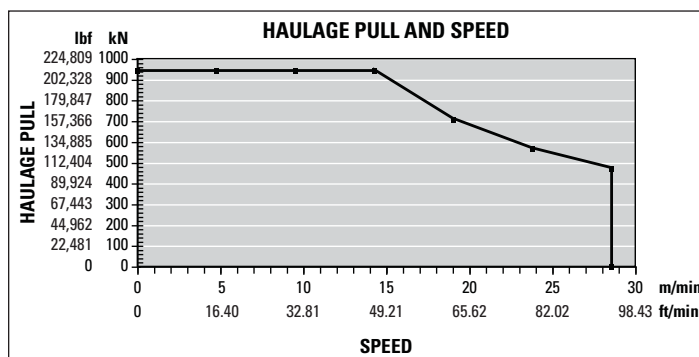
	Machine @ 50 Hz	Machine @ 60 Hz
Seam Range	1.8-4.5 m	71-177 in
Typical Machine Length (drum centers)	14 155 mm	46.2 ft
Installed Power	Up to 1780 kW	Up to 2,387 hp
Available Cutting Power	2 × 500 kW 2 × 620 kW 2 × 750 kW	2 × 800 hp 2 × 1,000 hp 2 × 1,200 hp
Cutting Drum Diameter	1600-2500 mm	63-98.5 in
Cutting Drum Speed	32.8, 37.4 and 45.2 rpm	39.4, 44.9 and 54.3 rpm
Haulage System	AC inverter drive	AC inverter drive
Haulage Motor	2 × 125 kW	2 × 168 hp
Haulage Speed	Up to 30.1 m/min	98.5 ft/min
Haulage Pull	Up to 945 kN	107 tons
Pump Motor	30 kW	40 hp
Body Height	600 mm	23.6 in
Machine Weight (approximate)	70 tonnes	77 tons
Operating Voltage	3,300V	4,160V
Minimum Pan Width	1032 mm	40.6 in

Ranging Arm – RA750

- Transmission rating of 750 kW @ 37.4 rpm and above
- Maximum drum diameter of 2500 mm (98 in)
- Choice of drum speeds
- Complete with 32 mm (1.3 in) bore, through shaft PFF/PBF wet cutting
- Square drum hub (440 mm [17.3 in] across flats)
- Maximum oil capacity of 28 L (7 gal) in high speed compartment and 30 L (8 gal) in the epicyclic
- Integral monitoring transducers
- Quillshaft transmission protection
- A robust cowl drive mechanism is also available on this model
- Online vibration monitoring with VibraGuard
- Available cutter motors – 500 kW, 620 kW and 750 kW, @ 50 Hz (800 hp, 1,000 hp and 1,200 hp, @ 60 Hz)

Haulage Unit – HU125

Total Machine Pull	945.51 kN	212,559 lbf
	96.80 tonnes	106.70 tons
Speed at Maximum Pull	14.28 m/min	46.83 ft/min
Maximum Machine Speed	28.56 m/min	93.66 ft/min
Pull at Maximum Speed	472.75 kN	106,278 lbf
	48.40 tonnes	53.35 tons



- Maximum power rating 125 kW (168 hp)
- Integral water cooling @ 9 L/min (2 gal/min)
- Transmission reduction of 137:1
- Maximum oil capacity of 25 L (7 gal)
- Integral monitoring transducers
- Quillshaft transmission protection
- This unit has a haulage motor rating of 125 kW (168 hp)

Options

- Available with Machine Position Encoder
- Available with Machine Parking Brake

EL2000 Longwall Shearer

Downdrive – DD125

- Innovative and unique downdrive design
- Transmission rating of 125 kW (168 hp)
- Maximum haulage pull 945 kN (107 tons)
- Fully removable, rehandable, modular gearbox
- Removable modular top drive wheel assembly (cartridge)
- Downdrive ratio 17T—23T—10T (two wheel configuration)
- Trapping shoe with replaceable wear inserts, safe and easy to replace (unique to Caterpillar)
- Suitable for all current rack type systems

Powerpack – PP2

- Fixed displacement pump, with a capacity of 50 L/min (13.21 gal/min)
- Operating system pressure of 260 bar (3,770 psi)
- Robust hydraulic reservoir of 165 L (43.6 gal) capacity
- Integral monitoring transducers
- For use with ISO 68 or ISO 100 hydraulic oils
- Available with 6 section valve bank
- This unit has a pump motor rating of 30 kW @ 50 Hz (48 hp @ 60 Hz)

Mainframe – MF2

- High structural integrity and absorption of all cutting and haulage forces, providing maximum protection for all major units
- Maximum protection of electrical boxes, providing the highest level of flameproof integrity
- Improved access for maintenance and ease of overhaul and repair
- Versatility of application due to fully modular construction
- A split mainframe is available in case of transportation limitations

Electrical Control Box – ECB2

- This flameproof module contains the majority of the shearer electrical control and power distribution components.
- High current carrying capacity of 400 amps and can accommodate trailing cables up to 185 mm² (2.9 in²).
- All internal chassis can be 'bench built,' tested and stored.
- Box contains various low voltage (LV) circuit breakers which can be reset through the flame proof (FLP) cover, reducing downtime.
- An extremely powerful PMC Evo-S control system with state-of-the-art Ethernet communication and backup functionality, this allows the shearer to be operated even if the overall control system is not functioning.
- This unit also contains cutter motor contactors, circuit breakers, control transformer, current monitoring, high voltage (HV) fuses, earth leakage and a visible disconnect.

Haulage Transformer Box – HTB2

- This flameproof module contains the main 253 kVA haulage transformer, power supplies, auxiliary transformer, drive system circuit breaker and one 250 kW, 600V AC inverter drive, with regenerative braking module.

Electrical Material

- This model of shearer is available with headlights, cameras, methane monitoring, end displays and audible alarms.
- All electrical material is designed and certified to IEC standards and also complies with other regional and national standards, such as MSHA, GOST, MA, ATEX and DGMS, as well as Australia's New South Wales and Queensland regulations.

Hydraulic Material

- All hose assemblies are to ISO 6805 and proof tested to EN ISO 1402.
- The hoses are assembled to Hose Assembly Standard DIN20066:201-10.
- All hose and hosing is in compliance with guideline MDG 41 and MSHA regulations.

Water Material

- All hose assemblies are to ISO 6805 and proof tested to EN ISO 1402.
- The hoses are assembled to Hose Assembly Standard DIN20066:201-10.
- This model of shearer is available with onboard filtration, dust suppression spray bars, shearer clearers and ranging arm spray rings.

Health Monitoring

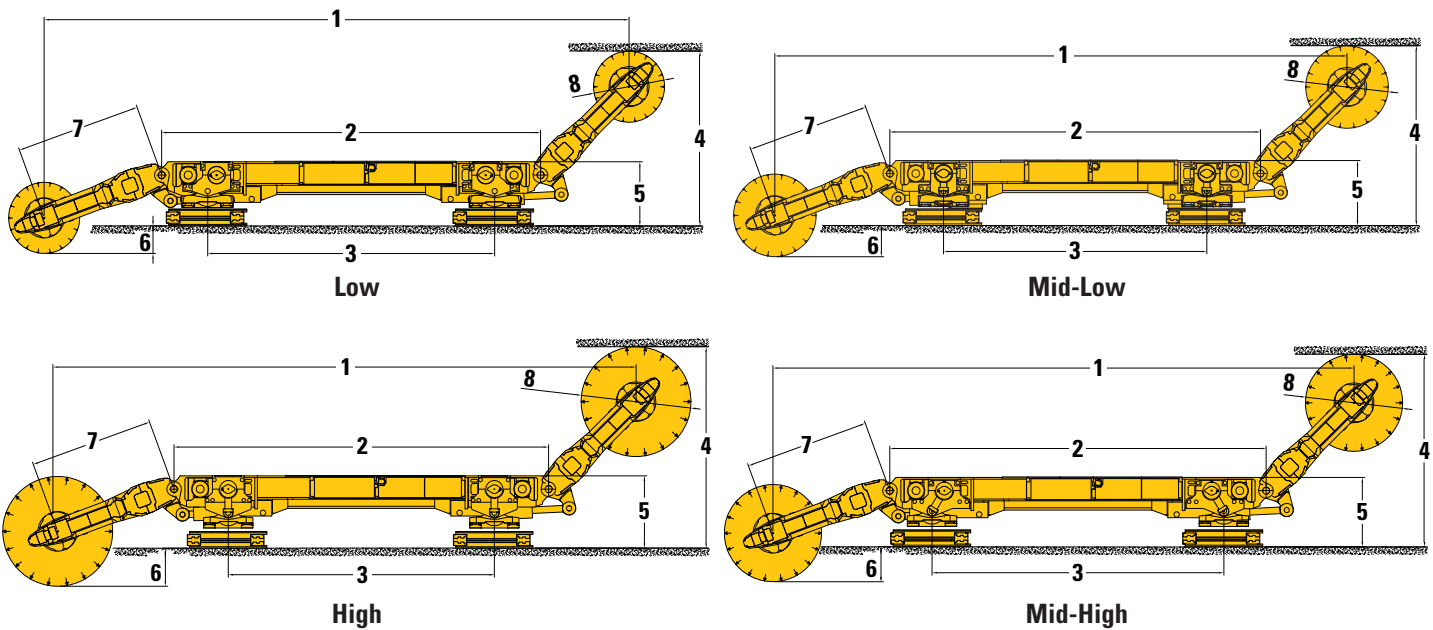
- A comprehensive health monitoring system is available, including oil levels and temperatures, flows, pressures and vibration analysis.

Machine Automation and Communication

Industry-leading Automation from the Pioneer of State-based Automation.

- This shearer has a state-of-the-art distributed automation system for the control, monitoring and protection of the shearer. Its modular design allows it to be configured to meet individual control needs, from basic monitoring and protection to advanced automation and data transmission.
- The PMC Evo-S control system with state-of-the-art Ethernet communication and backup functionality allows the shearer to be operated even if the overall control system is not functioning.
- The shearer is equipped with a state-of-the-art industry PC in a flame-proof housing with plenty of computing power, allowing flexibility to upgrade to future features such as condition monitoring.
- A Programmable Logic Controller (PLC) takes care of basic machine control tasks, ensuring that coal is produced.
- Unlike competitor systems, the modularity of the longwall system and control allow the longwall to operate in "fault-tolerant" mode, even when there is a problem with the overall automation system.
- In other words, integrated automation does not prevent control via individual PLC's in order to keep production up and running.
- Levels of automation:
 - Zone-based automation "Navigator 1"
 - State-based shearer automation "Navigator 2"
 - Integrated longwall automation with "Navigator 2 + 3"
 - "Longwall Navigator" for improved face alignment and horizon control

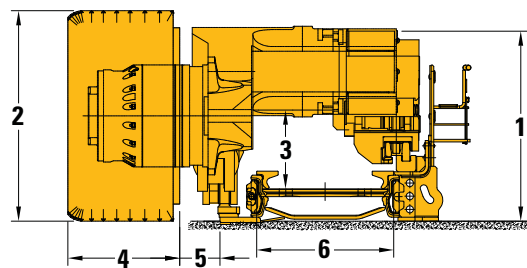
Typical Machine Configurations



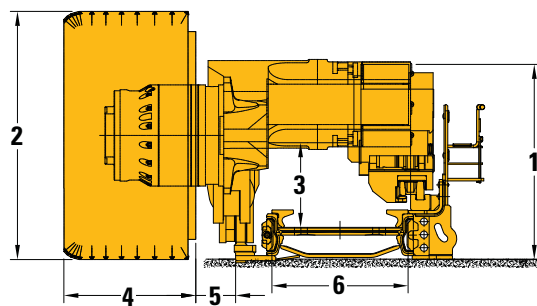
Dimensions (All dimensions are approximate.)

		Low		Mid-Low		Mid-High		High	
1 Distance between Drums with Arms Horizontal		14 155 mm	537 in	14 155 mm	537 in	14 155 mm	537 in	14 155 mm	537 in
2 Distance between Ranging Arm Hinge Points		8525 mm	336 in	8525 mm	336 in	8525 mm	336 in	8525 mm	336 in
3 Distance between Trapping Shoe Centers		6453 mm	254 in	6056 mm	238 in	6612 mm	260 in	6056 mm	238 in
4 Cutting Heights	Maximum	3930 mm	155 in	4135 mm	163 in	4360 mm	172 in	4570 mm	180 in
	Minimum	1800 mm	71 in	1900 mm	75 in	2200 mm	87 in	2500 mm	98 in
5 Height to Top of Machine Main Body		1444 mm	56.8 in	1495 mm	58.8 in	1571 mm	61.8 in	1647 mm	64.8 in
6 Shearer Drum Undercut of Floor		619 mm	24 in	718 mm	28.3 in	793 mm	31.2 in	866 mm	34 in
7 Ranging Arm Length (Hinge to Drum)		2815 mm	111 in	2815 mm	111 in	2815 mm	111 in	2815 mm	111 in
8 Diameter of Shearer Cutting Drum		1600 mm	63 in	1900 mm	75 in	2200 mm	87 in	2500 mm	98 in

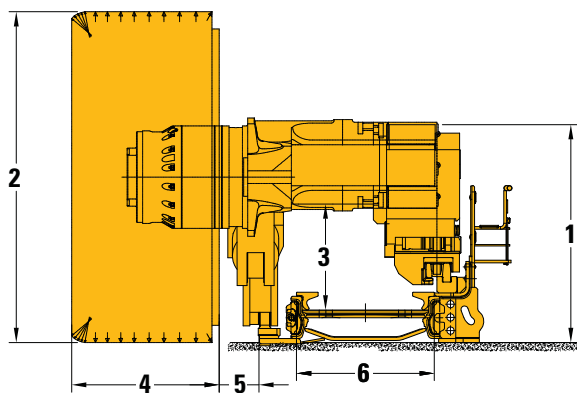
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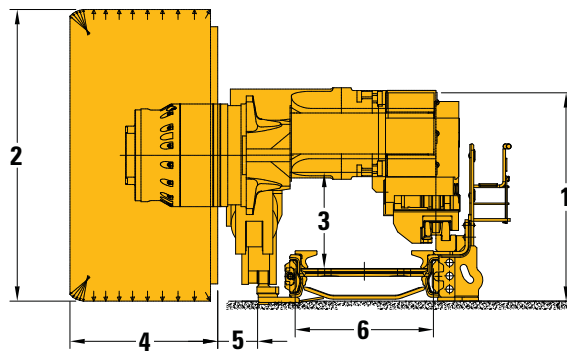
Low



Mid-Low



High



Mid-High

Dimensions (All dimensions are approximate.)

		Low		Mid-Low		Mid-High		High	
1 Machine Height over Main Body		1444 mm	56.8 in	1495 mm	58.8 in	1571 mm	61.8 in	1647 mm	64.8 in
2 Ranging Arm Cutting Drum Diameter		1600 mm	63 in	1900 mm	75 in	2200 mm	87 in	2500 mm	98 in
3 Vertical Tunnel Clearance		598 mm	23.5 in	649 mm	25.5 in	725 mm	28.5 in	801 mm	31.5 in
4 Maximum Cutting Drum Overall Width		1150 mm	45.3 in	1150 mm	45.3 in	1150 mm	45.3 in	1150 mm	45.3 in
5 Clearance from Drum to AFC Toeplate		300 mm	12 in	300 mm	12 in	300 mm	12 in	300 mm	12 in
6 AFC Pan Width	Maximum	1342 mm	53 in	1342 mm	53 in	1342 mm	53 in	1342 mm	53 in
	Minimum	1032 mm	41 in	1032 mm	41 in	1032 mm	41 in	1032 mm	41 in

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