

EL3000 Longwall Shearer

Ranging Arms

Choice of two types of ranging arm, both designed and robustly tested, for longer service life

RA750

- Transmission rating of 750 kW @ 37.4 rpm and above
- Maximum drum diameter of 2500 mm (98 in)
- 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 – 620 kW and 750 kW @ 50 Hz (1,000 hp and 1,200 hp @ 60 Hz)

RA860

- Transmission rating of 860 kW @ 30.8 rpm and above
- Maximum drum diameter of 2750 mm (108 in)
- Complete with 32 mm (1.3 in) bore, through shaft PFF/PBF wet cutting
- Square drum hub (630 mm [24.8 in] across flats)
- Maximum oil capacity of 45 L (12 gal) in high speed compartment and 60 L (16 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 – 750 kW and 860 kW @ 50 Hz (1,200 hp and 1,380 hp @ 60 Hz)

Haulage Units – HU150

- Maximum power rating 150 kW (204 hp)
- Integral water cooling @ 9 L/min (2 gal/min)
- Transmission reduction of 137:1
- Available with Machine Position Encoder
- Available with Machine Parking Brake
- Maximum oil capacity of 25 L (7 gal)
- Integral monitoring transducers
- Quillshaft transmission protection
- Online vibration monitoring with VibraGuard
- This unit has a haulage motor rating of 150 kW (204 hp)

Downdrive – DD150

- Innovative and unique downdrive design
- Transmission rating of 150 kW (204 hp)
- Maximum haulage pull 1075 kN (123 tons)
- Fully removable, rehandable, modular gearbox
- Removable modular top drive wheel assembly (cartridge)
- Downdrive ratio 22T—31T—11T (two wheel configuration)
- Available with three wheel configuration (27T idler)
- Trapping shoe with replaceable wear inserts, safe and easy to replace (Unique to Caterpillar)
- Suitable for all current rack type systems

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Powerpack – PP3

- Fixed displacement pump, with a capacity of 200 L/min (53 gal/min)
- Operating system pressure of 210 Bar (3,046 psi)
- Robust hydraulic reservoir of 300 L (79 gal) capacity
- Integral monitoring transducers
- For use with ISO 68 or ISO 100 hydraulic oils
- Available with 6 or 8 section valve bank (dependent on function requirement)
- Available with two speed ranging arm facility
- This unit has a pump motor rating of 75 kW @ 50 Hz (120 hp @ 60 Hz)

Mainframe – MF3

- 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
- Four machine heights available – 1690 mm, 1950 mm, 2110 mm and 2240 mm (66.5 in, 76.8 in, 83 in, and 88.2 in)
- A split mainframe is available in case of transportation limitations

Hydraulically Activated Top Guards

- This shearer can be equipped with hydraulically activated top guards

Electrical Control Box – ECB3

- This flameproof module contains the majority of the shearer electrical control and power distribution components
- High current carrying capacity of 500 amps and can accommodate trailing cables up to 240 mm² (9.4 in²)
- All internal chassis can be ‘bench built,’ tested and stored
- Box contains various LV circuit breakers which can be reset through the 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, HV fuses, earth leakage and both visible disconnects

Haulage Transformer Box – HTB3

- This flameproof module contains the main 350 kVA haulage transformer, power supplies, auxiliary transformer, drive system circuit breaker and two 200 kW, 600V AC inverter drives, 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
- All hose and hosing, is in compliance with guideline MDG 41 and MSHA regulations
- This model of shearer is available with onboard filtration, dust suppression spray bars, shearer clearers and ranging arm spray rings

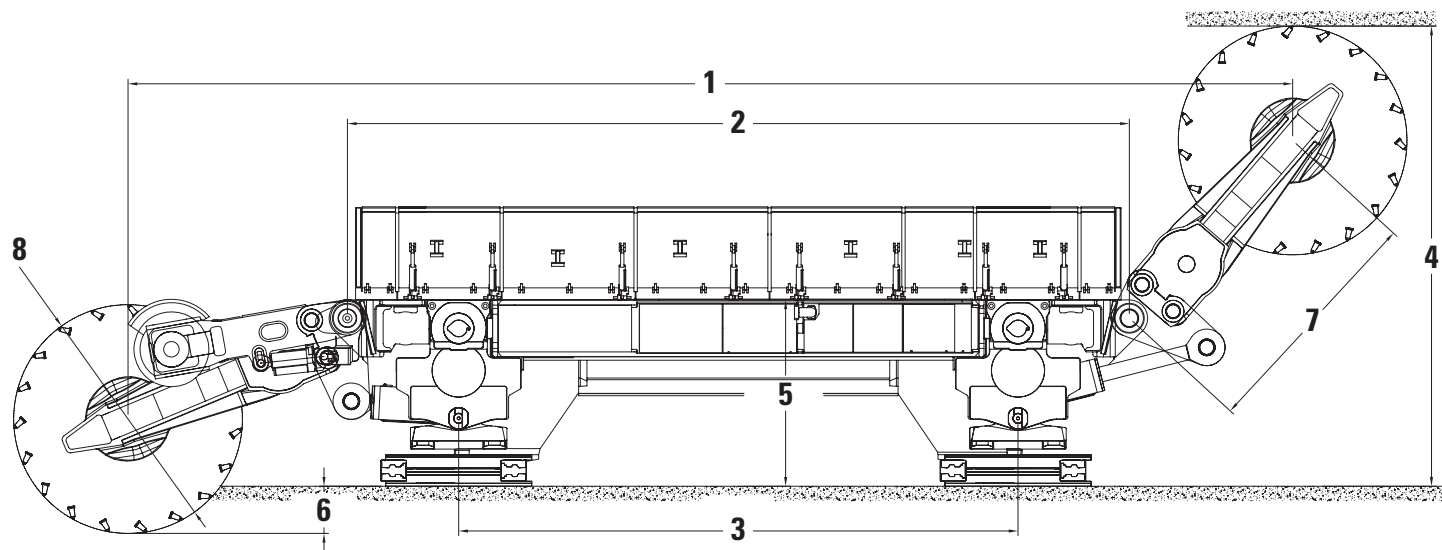
Machine Automation and Communication

- 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

EL3000 Longwall Shearer

Dimensions

All dimensions are approximate.

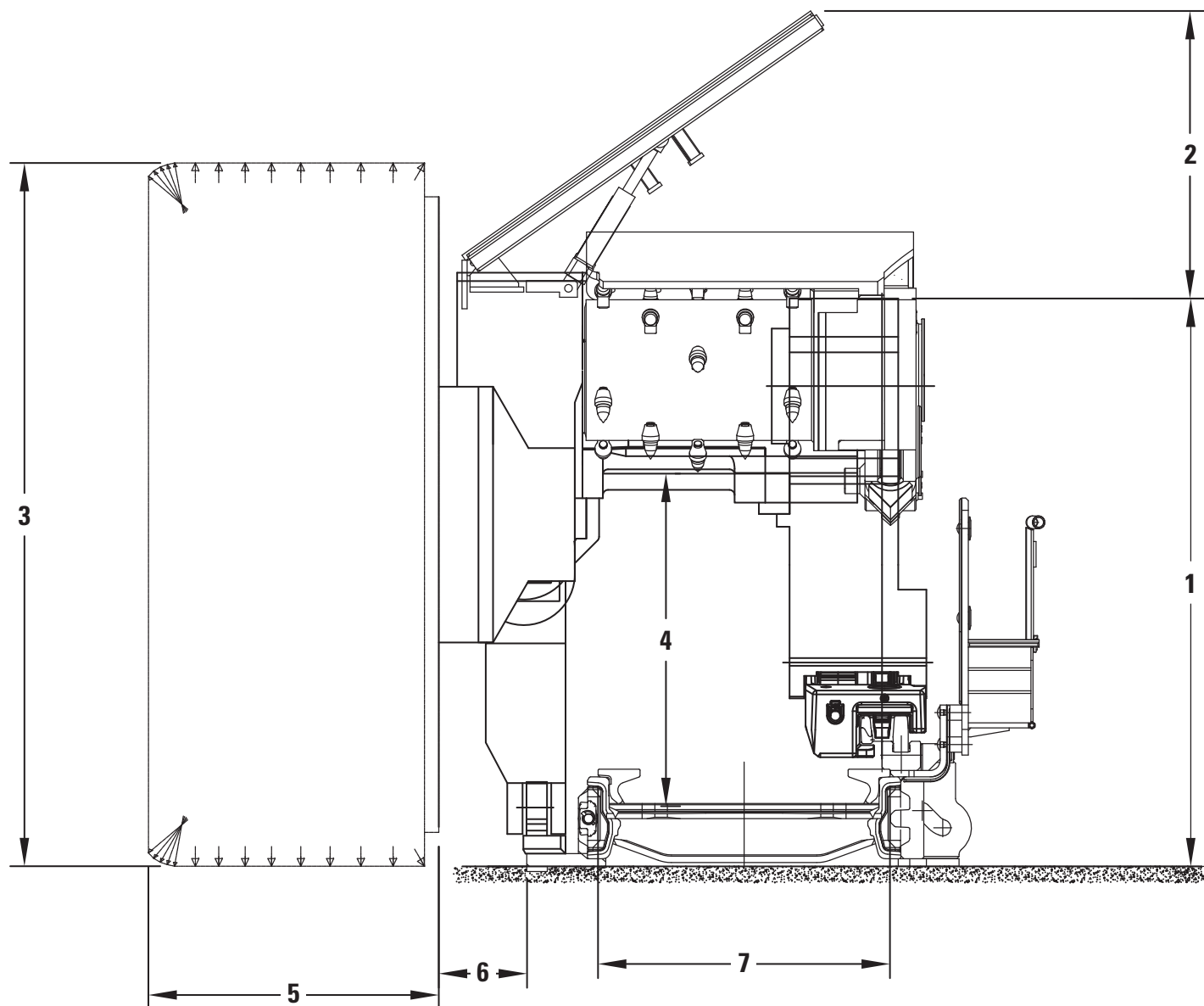


1 Distance between Drums with Arms Horizontal	15 200 mm	598 in
2 Distance between Ranging Arm Hinge Points	9400 mm	370 in
3 Distance between Trapping Shoe Centers	6724 mm	265 in
4 Maximum Cutting Height for Seam	5532 mm	218 in
5 Height to Top of Machine Main Body	2240 mm	88 in
6 Shearer Drum Undercut of Floor	567 mm	22 in
7 Ranging Arm Length (Hinge to Drum)	2900 mm	114 in
8 Diameter of Shearer Cutting Drum	2750 mm	108 in

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Dimensions

All dimensions are approximate.



1 Machine Height over Main Body	2240 mm	88 in
2 Top Guard Height over Main Body	1124 mm	44 in
3 Ranging Arm Cutting Drum Diameter	2750 mm	108 in
4 Vertical Tunnel Clearance	1300 mm	51 in
5 Cutting Drum Overall Width	1100 mm	43 in
6 Clearance from Drum to AFC Toeplate	344 mm	14 in
7 AFC Pan Width	1142 mm	45 in

EL3000 Longwall Shearer

Optional Accessories

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

AVAILABLE FOR EL3000:

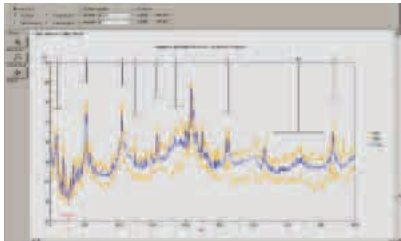


- Multi-piece Mainframe
- Cowl
- Spall Guards
- Coal Sizer 100 kW (134 hp)
- Coal Sizer 200 kW (268 hp)
- Trapping Shoe Ix (Standard)
- Shearer Clearer
- Spray Bars
- Central Lubrication System (Standard)
- PMC Evo-S (Standard)
- Gate End Data Connection
 - Powerline (Standard)
 - Fiber Optics
 - WLAN (Standard)
- IPC
- Zone-based Automation “Navigator 1”
- State-based Automation “Navigator 2”
- Integrated Longwall Automation with “Navigator 2 + 3” (only with Cat Longwall equipment)
- “Longwall Navigator” for Improved Face Alignment and Horizon Control Incorp. LASC Tech. (only with Cat Longwall equipment)
- VibraGuard
- Cameras
- Condition Monitoring

HEALTH MONITORING

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

VIBRAGUARD™



VibraGuard allows trained personnel to predict machine component wear, avoid unplanned downtime and set alarms to warn the operator if monitored machine components run the risk of damage. This comprehensive protection backs long life and high availability of your valuable mining equipment.

- Permanent online monitoring
 - Replacing sporadic offline measurements, permanent online monitoring provides extensive protection and helps predict component wear. Alarms warn the operator if monitored components are at risk of damage.
- Reduces unplanned downtime
 - When utilized by trained personnel, VibraGuard makes repairs predictable and helps avoid unplanned downtime. This allows timely procurement of spare parts and stress-free repair.
- Data analysis
 - Data is transferred to a surface control center PC for detailed analysis and evaluation.

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Optional Accessories (cont'd)

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

COAL SIZER



Cat shearers can be supplied with an optional rugged coal sizer, currently with up to 200 kW (268 hp) of installed power for maximum productivity in high seams or difficult mining conditions. The coal sizer can be ordered separately for installation during rebuild or overhaul.

Optional Machine Mounted Coal Sizer – CS200

- Transmission rating of 200 kW (320 hp @ 60 Hz)
- Quillshaft transmission protection
- Drum speed of 200 rpm (240 @ 60 Hz)
- Drum diameter 900 mm (35.5 in) over picks
- Integral water cooling for transmission and motor
- Square drum hub drive for drum
- Complete with anti-shock lift mechanism (unique to Caterpillar)
- Available motor rating 200 kW @ 50 Hz (320 hp @ 60 Hz)

SPECIALIZED SHEARERS

Caterpillar also supplies shearers for specialized applications:

- Single- and double-drum low-seam shearer
- Three-drum shearer for selective mining

These shearers utilize the key feature of modular mainframe construction and are proven for coal and non-coal applications.