

EL3000

Longwall Shearer



SPECIFICATIONS

	Machine @ 50 Hz	Machine @ 60 Hz
Seam Range	2.5-5.6 m	98-220 in
Typical Machine Length (drum centers)	15 200 mm	49.9 ft
Installed Power	Up to 2295 kW	Up to 3,680 hp
Available Cutting Power	2 × 620 kW 2 × 750 kW 2 × 860 kW	2 × 998 hp 2 × 1,207 hp 2 × 1,380 hp
Cutting Drum Diameter		
RA750	Up to 2700 mm	106 in
RA860	Up to 3200 mm	126 in
Cutting Drum Speed		
RA860	30.8, 35 and 43 rpm	37, 42 and 51.6 rpm
RA750	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 Power	2 × 150 kW	2 × 240 hp
Haulage Speed (maximum)	30.11 m/min	98.8 ft/min
Haulage Pull (maximum)	1079 kN	110 tons
Coal Sizer	200 kW	270 hp
Pump Motor	75 kW	100 hp
Body Thickness	685 mm	27 in
Machine Weight (approximate)	105 tonnes	116 tons
Operating Voltage	3,300V	4,160V
Minimum Pan Width	1132 mm	44.6 in

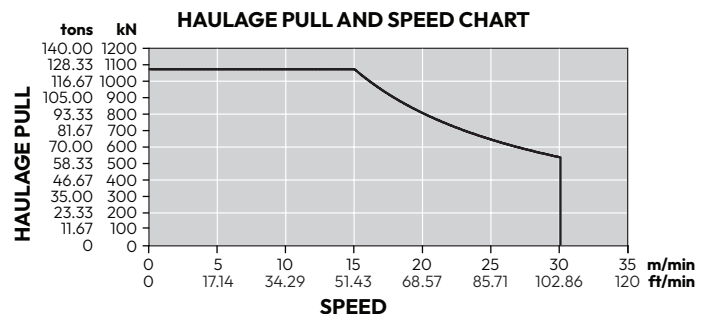
Ranging Arm – RA750

- > Reconfigurable gear cassettes for adaptation of drum speeds
- > Integral monitoring transducers
- > Quillshaft transmission protection
- > Transmission rating of 750 kW at 50 Hz (1,207 hp at 60 Hz)
- > Separate oil compartments for high speed and planetary section (optimal cooling and lubrication)
- > Maximum drum diameter of 2700 mm (106 in)
- > Available cutter motors – 620 kW and 750 kW at 50 Hz (998 hp and 1,207 hp at 60 Hz)
- > Non-handed modular unit
- > Robust cowl drive mechanism (optional)
- > Vibration monitoring (optional)

Ranging Arm – RA860

- > Reconfigurable gear cassettes for adaptation of drum speeds
- > Integral monitoring transducers
- > Quillshaft transmission protection
- > Separate oil compartments for high speed and planetary section (optimal cooling and lubrication)
- > Maximum drum diameter of 3200 mm (126 in)
- > Available cutter motors – 750 kW and 860 kW at 50 Hz (1207 hp and 1384 hp at 60 Hz)
- > Non-handed modular unit
- > Robust cowl drive mechanism (optional)
- > Vibration monitoring (optional)

Haulage Unit – HU150



- > Haulage motor 150 kW (168 hp)
- > Transmission reduction of 137:1
- > Absolute encoder for accurate machine position detection (no reset devices at gate ends needed)
- > Fully removable, modular gearbox
- > Haulage unit accepts hydraulic motor for installation and face recovery
- > Oil level and temperature monitoring
- > Quillshaft transmission protection
- > Machine parking brake (optional)
- > Vibration monitoring (optional)

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Downdrive

- > Removable modular top drive wheel assembly (cartridge design allows easy and quick inspections)
- > Transmission rating of 150 kW (201 hp)
- > Trapping shoe with replaceable wear inserts, safe and easy to replace
- > Suitable for all rack type systems
- > Reconfigurable downdrive and shoe posts for different pan widths and seam heights

Powerpack – PP3

- > Single powerpack with less parts to fail and less tasks for quick and easy maintenance
- > Pump flow rate of 200 l/min (44 gal/min)
- > Maximum system pressure of 210 bar (3046 psi)
- > Robust hydraulic reservoir of 300 L (66 gal) capacity
- > Integral monitoring transducers (oil level and temperature)
- > Optional filter monitoring
- > For use with ISO 68 hydraulic oils
- > Available with 8-section valve bank
- > Reliable high-voltage pump motor rating of 75 kW @ 50 Hz (100 hp @ 60 Hz)
- > Dual speed ranging arm control (optional)

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, protects gearboxes against torsion
- > Split mainframe available in case of transportation limitations
- > Modular design enabling for selective overhauls
- > Spray boom retrofittable
- > Mainframe adds additional weight to cope with the most challenging cutting conditions

Electrical Control Box – ECB3

- > This flameproof module contains most of the shearer electrical control and power distribution components
- > High current carrying capacity of 500 amps; accommodation of trailing cables up to 240 mm² (500 mcm AWG)
- > Internal chassis with defined standard designs can be 'bench built,' tested and stored
- > LV circuit breakers resettable through FLP cover (reduced downtime)
- > Powerful PMC Evo-S control system with state-of-the-art Ethernet communication
- > Containing cutter motor contactors, circuit breakers, control transformer, current monitoring, HV fuses, earth leakage and visible disconnect

Haulage Transformer Box – HTB3

- > Flameproof module containing the main 350 kVA haulage transformer, power supplies, auxiliary transformer, drive system circuit breaker, hydraulic pump motor, and 2 × 200 kW (268 hp) 600V AC inverter drive with integrated regenerative braking

Electrical Material

- > Headlights, cameras, methane monitoring, end displays and audible alarms
- > Industrial PC (IPC)
- > Inertial Navigation System (INS)
- > All electrical material is designed and certified to IEC standards and 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 according to EN ISO 1402
- > The hoses are assembled to Hose Assembly Standard DIN 20066
- > Hose selection and routing per industry standard best practices (including MDG41, ISO TS 17165N2 and SAE J1273)
- > HBT hoses are aligned with the standards of MSHA, DGMS and MA

Water Material

- > All HBT hose assemblies are designed according to ISO 6805 and proof tested according to EN ISO 402
- > The hoses are assembled to Hose Assembly Standard DIN 20066
- > Hose selection and routing per industry standard best practices (including MDG41, ISO TS 17165N2 and SAE J1273)
- > HBT hoses are aligned with the standards of MSHA, DGMS and MA MDG 41 compliant hoses are available for Australia
- > Stainless steel fittings (optional)
- > Onboard water filtration (optional)

Dust Suppression

- > Wide range of dust suppression solutions available:
 - > Body sprays
 - > Spray booms
 - > Sloughing plate sprays
 - > Spray rings (in place of cowls)
 - > Shearer clearers

Coal Sizer (optional)

- > Transmission rating of 200 kW (270 hp)
- > Quill shaft protection
- > Non-handed unit
- > Drum diameter 900 mm (35.43 in)
- > Drum speed 200 rpm
- > Anti-shock lift mechanism
- > Retrofittable during rebuild

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Health Monitoring

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

Machine Automation and Communication

- > Distributed, high-performance PMC-S control system for machine control, health monitoring, system protection and predictive maintenance
- > Modular design allows individual configuration (from basic monitoring and protection to advanced automation) to meet customer requirements
- > Fast Ethernet Broadband communication allows enhanced diagnostics and analysis
- > Control system architecture with backup functionality
- > Widespread use of intrinsically safe components for improved serviceability and maintenance
- > Machine performance algorithm “advanced motor and speed control” for increased machine uptime, coal production and longer service life

- > Shearer automation levels available:
 - > Standard Machine Control
 - > Basic Automation
 - > Advanced Automation (including face alignment horizon control)
- > Pan Angle Measurement System (PAMS) enabling fully automated gate end cutting sequences without machine operator interactions (optional)
- > Horizon Control from PMC-R Controls to allow corrections to floor and roof drum cutting heights (optional)
- > Shearer Remote Operation to allow machine control from a safe remote location outside the face (optional)

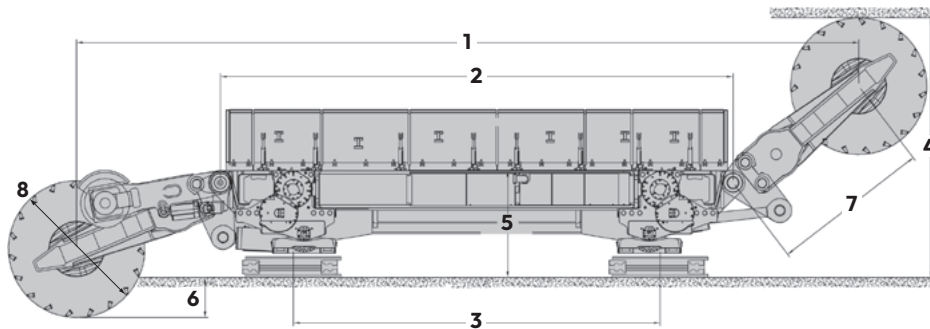
Remote Control

- > Lightweight handheld device
- > Color graphic display
- > Tilt, drop and impact detection

TYPICAL MACHINE CONFIGURATIONS

Dimensions

All dimensions are approximate.



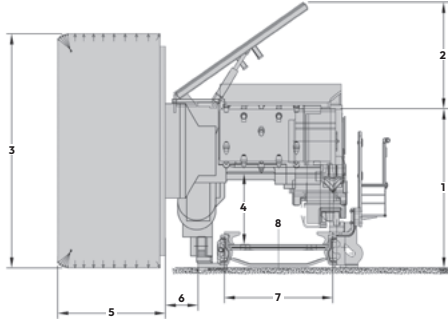
	Low		Medium		High		Super High	
1 Distance between Drums with Arms Horizontal	15 200 mm	598 in	15 200 mm	598 in	15 200 mm	598 in	15 200 mm	598 in
2 Distance between Ranging Arm Hinge Points	9400 mm	370 in	9400 mm	370 in	9400 mm	370 in	9400 mm	370 in
3 Distance between Trapping Shoe Centers	6724 mm	265 in	6332 mm	249 in	6724 mm	265 in	6724 mm	265 in
4 Maximum Cutting Height for Seam	4400 mm	173 in	4660 mm	183 in	4820 mm	190 in	5600 mm	220 in
5 Height to Top of Machine Main Body	1690 mm	67 in	1950 mm	77 in	2110 mm	83 in	2250 mm	89 in
6 Shearer Drum Undercut of Floor	640 mm	25 in	380 mm	15 in	220 mm	9 in	550 mm	22 in
7 Ranging Arm Length (Hinge to Drum)	2900 mm	114 in	2900 mm	114 in	2900 mm	114 in	2900 mm	114 in
8 Diameter of Shearer Cutting Drum	2200 mm	87 in	2500 mm	98 in	2700 mm	106 in	3200 mm	126 in

NOTE: All illustrations and drawings are exemplary. Binding drawings are created for specific offers.

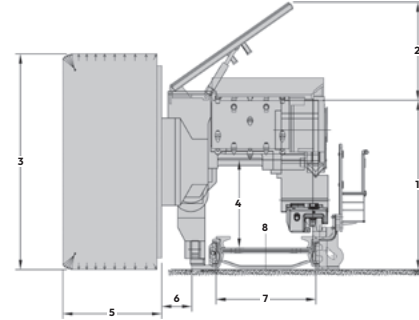
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Dimensions

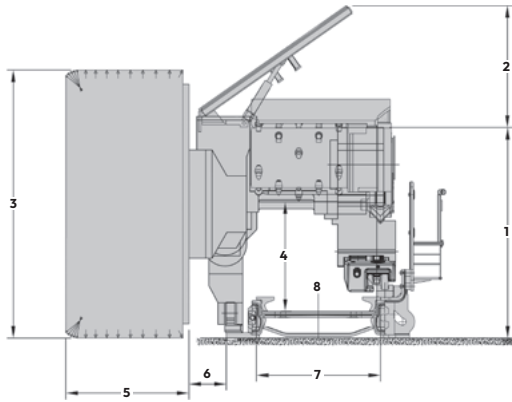
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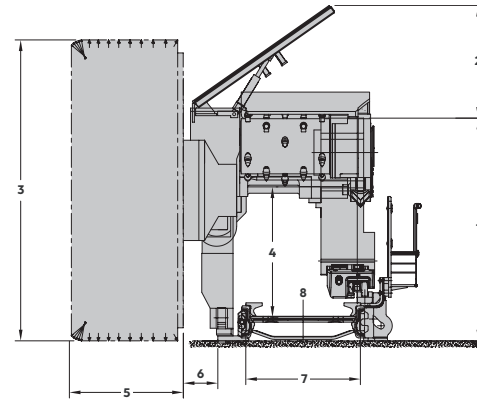
Low



High



Medium



Super High

	Low		Medium		High		Super High	
1 Machine Height over Main Body	1690 mm	67 in	1950 mm	77 in	2110 mm	83 in	2250 mm	89 in
2 Top Guard Height over Main Body	1124 mm	44 in	1124 mm	44 in	1124 mm	44 in	1124 mm	44 in
3 Ranging Arm Cutting Drum Diameter	2200 mm	87 in	2500 mm	98 in	2700 mm	106 in	3200 mm	126 in
4 Vertical Tunnel Clearance	800 mm	31 in	1060 mm	42 in	1220 mm	48 in	1340 mm	53 in
5 Cutting Drum Overall Width	1100 mm	43 in	1100 mm	43 in	1100 mm	43 in	1100 mm	43 in
6 Clearance from Drum to AFC Toeplate	344 mm	14 in	344 mm	14 in	344 mm	14 in	344 mm	14 in
7 AFC Pan Width	1142 mm	45 in	1142 mm	45 in	1142 mm	45 in	1142 mm	45 in
8 Cross Sectional Area (CSA)	0.57 m ²	6.1 ft ²	0.80 m ²	8.6 ft ²	0.95 m ²	10.2 ft ²	1.06 m ²	11.4 ft ²

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