

## JOY18HD

Load Haul Dump – Diesel Hybrid  
General Specifications



Safety



Reliability



Productivity



Note: Indicative illustration only, machine design may vary.

### Operating capacities, weights and dimensions

Bucket capacity*	9.2 m <sup>3</sup>
Static tipping loads	395 kN
Breakout force (tilt)	349 kN
Operating weight	53300 kg

\*Standard rock bucket based on a material density of 2,000 kg/m<sup>3</sup>.

### Working ranges

Engine rated power	
Base engine	280 kW
Option engine	320 kW
Payload	18,000 kg

Bucket capacity: 8.2 m<sup>3</sup>, 10.0 m<sup>3</sup> and 11.2 m<sup>3</sup> bucket options available



Power module		
<b>Diesel power options</b>	<b>Base</b>	<b>Option</b>
MTU detroit diesel engine Model	US tier IV final/EU stage IV Series 1100, 10.6 litre Six cylinders	US tier IV final/EU stage IV Series 1100, 10.6 litre Six cylinders
Type	Four-cycle turbo charged	Four-cycle turbo charged
Rated engine power	280 kW (375 hp) @ 1800 rpm	320 kW (429 hp) @ 1800 rpm
Both engines are available in either Tier IV or emmissions flex package. The Tier IV option has included a catalytic converter. The emmissions flex package is finished with a standard muffler or an optional diesel particulate filter.		

The independent power module mounting system, consisting of the engine coupled to the SR generator, is cradled within the rear frame by a three-point isolation system.

<b>Radiator/oil cooler module</b>
• Replaceable tube type, over-under split flow
• Thermostatically controlled, variable speed hydraulic motor-driven, radiator-mounted fan

<b>Exhaust system</b>
MTU Tier IV final exhaust after treatment catalyst box

Control system-LINCS II
CAN Based Vehicle Control Unit incorporating high speed monitoring and advanced diagnostics including integrated data logging and storage.
LINCS II uses a dash mounted full color touch screen display as the operator interface. Out of range conditions will cause an audible alarm along with a message screen that is color coded to indicate severity.
In addition, the touch screen display provides repair technicians with operational data and fault messages.

<b>LINCS II load weigh</b>
Displays real-time load data, cycle times, production rates and operational profile.
• Memory capable of retaining months of production information
• JoySmart remote monitoring connectivity available for additional diagnostics and productivity analysis
• Capable of interfacing with radio dispatch systems for on-site real-time monitoring

Steering and hoisting system	
<b>Steering</b>	
Steering function is controlled by a single joystick. Constant engine rpm assures full hydraulic steering response.	
<b>Articulation angle</b>	46°
<b>Turning radius</b>	
Outside	7.3 m
Inside	3.4 m

### Hoist and bucket control

Hoist and bucket control functions are incorporated into a single joystick control. The proportional electro-hydraulic controlled hoist and bucket system is independent of the steering system.

Standard/high lift cycle times:

Hoist	8.2 seconds
Dump	2.2 seconds
Float	3.4 seconds
Total	13.8 seconds

Operator's cabin
<b>Features</b>
• ISO ROPS/FOPS design, rubber mounted for comfort
• Foot box for improved operator ergonomics
• Refrigerated climate control system
• Door interlock sets park brakes, blocks steering movement once the machine is stationary and bucket and boom functions immediately
• Door movement damper to control door movement
• Adjustable air seat suspension with four (4) point harness

Electrical propulsion system
Switched Reluctance (SR) Technology
Electrical Propulsion System
• Digital microprocessor controlled traction drive
• Switched Reluctance (SR) drive advantages include:
- No commutator, brushes or rotor windings on SR motors or generator
- SR KESS - Kinetic Energy Storage System
- Parts commonality - power conversion modules identical for motor, generator and SR KESS

<b>Travel speed</b>
Forward and reverse 0-27 km/h

<b>Generator</b>
• G40 SR Generator
• Switched Reluctance (SR)

<b>Traction motors</b>
• B9 SR motor (water cooled)

<b>Planetary gearing</b>
Model 29A
• In-line gear train mounted within the rim of the tire, transmitting power from the traction motor through the tire/rim assembly
• A four-stage planetary drive unit in each position
• Total reduction: 92.63:1

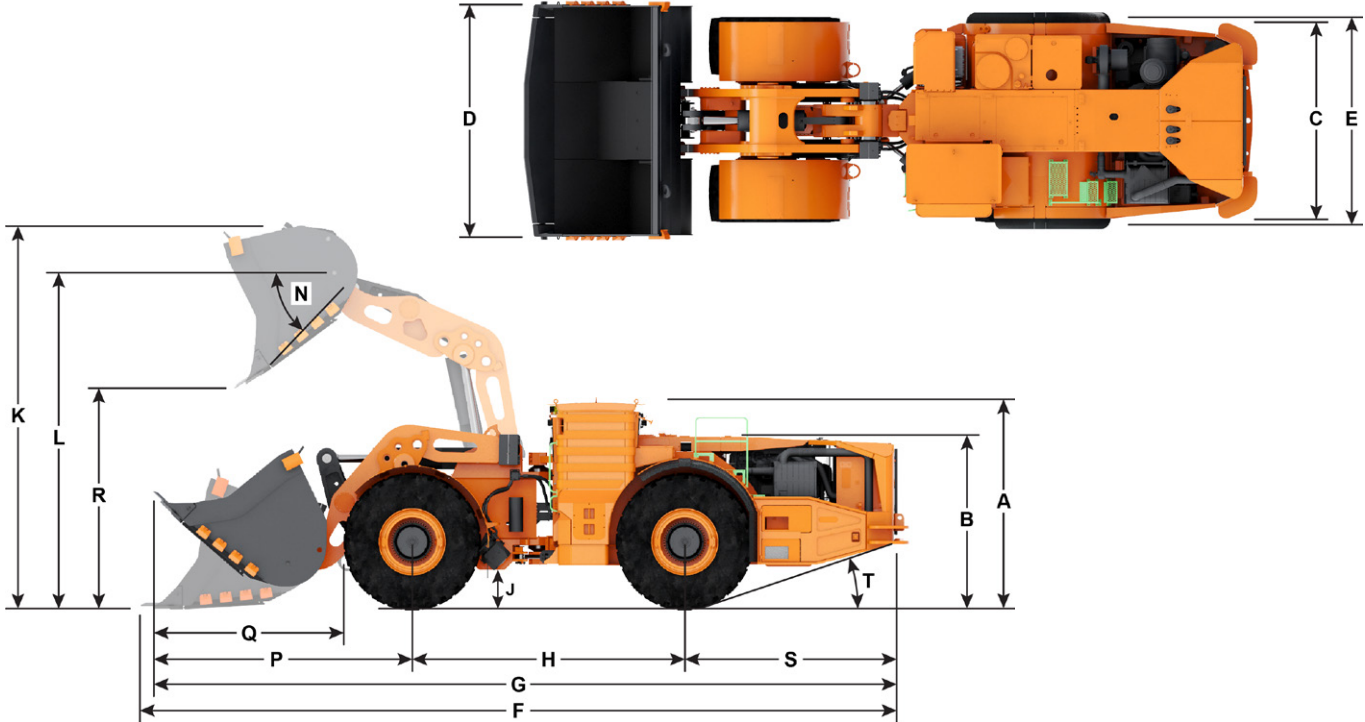
Hydraulic system		
<b>Pumps</b> (Maximum flow rate at 1800 rpm)		
Bucket and hoist	Piston	234 L/min
Fast hoist	Piston	234 L/min
Accessory	Piston	171 L/min
Steering	Piston	171 L/min
Accessory	Piston	171 L/min
<b>Valves</b>		
Main	Two (2)	221 L/min
	Pump pressure	275 bar
Steering	One (1)	341 L/min
	Pump pressure	275 bar

<b>Cylinders</b>	
Double acting, single-stage (diameter)	
Hoist	190 mm
Bucket	241 mm
Steering	140 mm

Braking system
<b>Primary brake system</b>
Electric dynamic braking system is controlled from the accelerator pedal and can bring the loader to a full stop without application of mechanical brakes.
<b>Secondary brake system</b>
Hydraulically modulated traction motor speed disc brakes
<ul style="list-style-type: none"><li>• Single disc and caliper on each rear traction motor, dual disc and caliper on each front traction motor</li><li>• Emergency fail safe brakes are spring applied in the event of hydraulic pressure loss</li></ul>

<b>Parking brake system</b>
Spring applied, hydraulic release traction motor speed disc brakes

24V electrical system
• 200 amp alternator
• Modular IP67 wiring system
• Lockable, dual isolation switch system
• Separate, fully isolated auxiliary power supply for fire suppression and radio systems
• 16 x 50 watt LED driving and work lights



Overall dimensions

A	Height over cabin	2972 mm
B	Height over power unit	2489 mm
C	Vehicle width across tires	2800 mm
D	Width across bucket	3100 mm
E	Max. rear frame width	2920 mm
H	Wheelbase	4100 mm
J	Ground clearance	400 mm
L	Hinge pin height	4700 mm
M	Roll back angle	48°
N	Dump angle	46°
S	Wheel center to rear bumper	3300 mm
T	Departure angle	15°

Air filtration	
<b>Primary</b>	
Dual safety filters for engine air intake with Sy-Klone™ Dome precleaner	
Fluid capacities	
Fuel	757 L
Hydraulic	473 L
SR converter cooling system	18.9 L
Engine cooling system	75.7 L
Engine oil	34 L
Planetaries (each)	18 L

Structural
Frames are fabricated from high strength, low-alloy steel with excellent weld characteristics and extreme low temperature properties. The front axle is an integral, fixed part of the front frame. The rear axle center oscillates eight degrees.
Unique forged ball and socket joints are utilized in multiple pivot locations (lift arms, rear axle, frame articulation, hoist cylinders). These joints are superior in absorbing and distributing multi-directional stresses. Features easily replaceable brass liners for long life and easy maintenance.
High strength castings are used in key areas of fabricated structures to reduce stress and improve structural life.

Bucket data				
	Volume, nominal heaped - m³	8.2	9.2	10.2
F	Vehicle length Digging - mm	11,405	11,506	11,786
G	Vehicle length hauling - mm	11,176	11,227	1,1430
K	Bucket height, fully raised, dumped - mm	5,359	5,359	5,359
P	Wheel center to bucket - carry - mm	3,759	3,835	4,039
Q	Tire to bucket dump - mm	1,575	1,626	1,753
R	Dump height - mm	2,845	2,769	2,540

**Standard features**

Tires	29.5 R29 L4
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**Standard equipment**

- Air conditioning/heater-defroster (filtered and pressurized)
- Air tank bleed system
- Adjustable automatic lift height cut off
- Automatic bucket leveling control
- Back-up alarm, audible
- Battery disconnect switch
- Lift arm and articulation locks
- Brake lights
- Central service with fast fuel
- Data analysis and viewing software
- Data logging - downloadable production and maintenance logs
- Door interlock on operators cabin
- Drawbar with tow points
- Electric horn
- Emergency stop buttons (cab and remote mounted)
- Fire extinguisher, manual, 20 lb (9.07 kg)
- FOPS - Falling Object Protection System
- Idle timer
- Interior lights
- Isolation monitor
- Joystick hoist and bucket control
- Joystick steering control
- Jump start
- Emergency steering
- LED working lights
- LINC'S II alarms
- LINC'S II load weigh and monitoring
- Operator seat (11-way adjustable)
- Overspeed alarm
- Parking brake
- Retractable four point over shoulder harness
- ROPS - Rollover Protection Structure
- Selectable throttle switch
- Starter disconnect switch
- Safety glass throughout
- Turn signals
- Twelve (12) volt power supply in cab
- Twelve (12) volt power port (2)
- Windshield washer reservoir 2.6 gal (9.8 L)
- Windshield wiper and washer (all cab glass)
- Automatic lubrication system
- Manuals: operators, parts (Link One), maintenance and service
- Kinetic Energy Storage System (KESS)
- Removable planetary middle pinion (x4)
- Integrated underside protection system
- Color coded and labelled lifting points

**Optional features**

- Beacon light kit
- Hood mounted hand rail kit
- Diesel particulate filter (EFP engine only)
- Fire detection and suppression system (automatic)
- Fire suppression system (manual)
- Fluid sampling kit
- PreVail remote health monitoring system
- Ride control system
- Tire pressure monitoring system
- Recovery hitch with automatic brake release
- RCT Control Master - line of sight remote control
- Fast fuel

**Buckets**8.2 m<sup>3</sup>, 9.2 m<sup>3</sup>, 10.0 m<sup>3</sup> and 11.2 m<sup>3</sup>

For actual bucket configuration and sizing, consult you local representative.

**Remote control/automation system**

- RCT Control Master - line of sight remote control
- CAN interface between remote hardware and machine control
- Safety system/fail safe system inter-connectivity hard wired to RCT module (emergency stop, fire system, park brake)
- Functional safety to ISO 62001

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EN-J18HDLHDDH01-0120-V5

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