JOY22HD
Load Haul Dump – Diesel Hybrid
General Specifications

Safety

Reliability

Productivity

Note: Indicative illustration only, machine design may vary.

<table>
<thead>
<tr>
<th>Operating capacities, weights and dimensions</th>
<th>Working ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bucket capacity*</td>
<td>Engine rated power</td>
</tr>
<tr>
<td>11.2 m³</td>
<td>320 kW</td>
</tr>
<tr>
<td>Static tipping loads</td>
<td>Base engine</td>
</tr>
<tr>
<td>473 kN</td>
<td>380 kW</td>
</tr>
<tr>
<td>Breakout force (tilt)</td>
<td>Option engine</td>
</tr>
<tr>
<td>347 kN</td>
<td></td>
</tr>
<tr>
<td>Operating weight</td>
<td>Payload</td>
</tr>
<tr>
<td>59,091 kg</td>
<td>22,000 kg</td>
</tr>
</tbody>
</table>

*Standard bucket based on a material density of 2,000 kg/m³

Bucket capacity: 10.0 m³, 12.2 m³ and 13.8 m³ bucket options available
General specifications

Power module

- Diesel power options
- MTU Detroit diesel engine
- Model: US tier IV Final/EEU stage IV
- Series: 1300, 12.8 litre
- Six cylinders
- Four-cycle turbocharged
- Four-cycle turbocharged

- Option
- US tier IV Final/EEU stage IV
- Series: 1300, 12.5 litre
- Six cylinders
- Four-cycle turbocharged

- Engine type: Four-cycle turbocharged
- Type: Six cylinders
- Rated engine power: Both engines are available in either Tier IV or emissions flex package. The Tier IV option has included a catalytic converter. The emissions flex package is furnished with a standard muffler or an optional dual exhaust 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.

- Radiator/cooling module
- Rechargeable tube type, over-under split flow
- Thermally controlled, variable speed hydraulic motor-driven, radiator-mounted fan

- Exhaust system
- MTU Tier IV final exhaust after treatment catalyst box

Central system-LNCS II

- CAN based Vehicle Control Unit incorporating high-speed monitoring and advanced diagnostics including integrated data logging and storage.
- LNCS 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.

- LNCS II load weigh
- Displays real-time load data, cycle times, production rates and operational profile.
- Memory capable of retaining months of production information.

- Smart Solutions remote monitoring connectivity available for additional diagnostics and productivity analysis.
- Capable of interfacing with radio dispatch systems for on-site real-time monitoring.

Styling and finishing system

- Steering and hoisting system
- Steering function is controlled by a single joystick. Constant engine rpm assures full hydraulic steering response.

- Articulation angle: 40°

- Turning radius
- Outside: 7.53 m
- Inside: 3.21 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: 8.4 sec
- Dump: 2.0 sec
- Float: 4.0 sec
- Total: 14.4 sec

- Operator’s cabin

- Features
- ISO ROPS/FOPS design, rubber mounted for comfort
- Key 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
- User 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 as SR motors and SR- KESS - Kinetic Energy Storage System - Parts commonality - power conversion modules identical for motor, generator and SR KESS

- Travel speed
- Forward and reverse 0-27 km/h

- Generator
- 450 SR Generator
- Switched Reluctance (SR)

- Traction motors
- 89 SR motor (water cooled)

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

Hydraulic system

- Pumps
- (Maximum flow rates at 1800 rpm)
- Bucket and hoist: Piston
- Fast hoist: Piston
- Accessory: Piston
- Steering: Piston
- Accessory: Piston
- Valves
- Main: Two (2)
- Steering: One (1)
- Pump pressure: 341 bar
- 275 bar

- Cylinders
- Double acting, single stage (diameter)
- Hoist: 230 mm
- Bucket: 250 mm
- Steering: 140 mm

- Braking system

- Primary brake system
- Electric dynamic braking system is controlled from the accelerator pedal and can bring the loader to a full stop without application of mechanical brakes.

- Secondary brake system
- Hydraulically modulated traction motor speed disk brakes

- Parking brake system
- Spring applied, hydraulic release traction motor speed disk brakes

Airfiltration

- Primary
- Dual safety filters for engine air intake with Sy-Klone™ Dome precleaner.

- Fluid capacities

- Fuel
- 719 L
- Hydraulic
- 473 L
- Engine oil
- 18.9 L
- SR converter cooling system
- 75.1 L
- Engine oil
- 39 L
- Planetarys (each)
- 18.9 L

- Structural

- Frames are fabricated from high strength, low-alloy steel with excellent weld characteristics and extremely 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 (left arm, rear axle, frame articulation, hoist cylinder). These joints are superior in absorbing and distributing multi-directional stresses. Features easily replaceable brass bushers 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
- 10
- 11.2
- 12.3
- 13.8
- Vehicle length Digging - mm
- 11,405
- 11,557
- 11,735
- 11,863
- Vehicle length digging - mm
- 11,201
- 11,303
- 11,430
- 11,582
- Bucket height, fully raised, dumped - mm
- 3,912
- 4,013
- 4,191
- Tire to bucket ramp - mm
- 1.576
- 1.676
- 1.803
- 1.958
- Damp height - mm
- 2,870
- 2,743
- 2,642
- 2,464

- Overall dimensions

- A
- Height over cabin
- 3048 mm
- 3030 mm
- 3045 mm
- 3050 mm
- B
- Height over power unit
- 2515 mm
- 2493 mm
- 2550 mm
- 2642 mm
- C
- Vehicle width across tires
- 2870 mm
- 2912 mm
- 2954 mm
- 3048 mm
- D
- Width across bucket
- 3606 mm
- 3606 mm
- 3606 mm
- 3606 mm
- E
- Max. rear frame width
- 2023 mm
- 2060 mm
- 2060 mm
- 2060 mm
- F
- Wheelbase
- 2412 mm
- 2500 mm
- 2500 mm
- 2600 mm
- G
- Ground clearance
- 500 mm
- 500 mm
- 500 mm
- 500 mm
- H
- Linkage pin height
- 4700 mm
- 4700 mm
- 4700 mm
- 4700 mm
- I
- Roll back angle
- 47°
- 47°
- 47°
- 47°
- J
- Dump angle
- 40°
- 40°
- 40°
- 40°
- K
- Wheel center to rear bumper
- 3200 mm
- 3200 mm
- 3200 mm
- 3200 mm
- L
- Departure angle
- 10°
- 10°
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- 10°

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### Standard features

| Tires                  | 35/65 R33 |

- **Tires**
- **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**
- **LINCS II alarms**
- **LINCS 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 engines 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

- **10.0 m³, 11.0 m³, 12.2 m³ and 13.8 m³**

For actual bucket configuration and sizing, consult your 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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