## Technical Description

### Mining Truck

**Operating Weight**: 157 t

**Maximum GVW**: 390 t

**Engine Output**: 2000 to 2500 HP

**Payload Class**: 218 t

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**346 000 lbs**

**860 000 lbs**

**240 ton**
**Engine**

- **Engines options**
  - DDC/MTU: 12V4000, 16V4000
  - Cummins: 1510 – 1864 kW / 2025 – 2500 HP
- **Air cleaners**
  - Donaldson SRG 29 with restriction indicators in cab
- **L & M (Mesabi) radiator**
- **Reduced parasitic load through large diameter, slow speed radiator fan**
- **Air starter**
- **Batteries**
  - (2) 12 volt, 1200 CCA
- **Roll-out power module includes:**
  - radiator, engine and alternator on subframe

**Electric Drive System**

- **Manufacturer**
  - General Electric
- **Wheel Motors**
  - GE 787 Statex III
- **Alternator**
  - GTA-26
- **Dynamic Retarding**
  - Blown grids (14 element), 3-step extended range retarding
  - Optional: 7-step extended range retarding, and retard speed control

**Tires (Radial)**

- **Standard size**
  - 40R57 (E4)

**Fluid Capacities**

- **Fuel tank**
  - 3310 l / 875 gal,
  - (2 tanks total)
- **Hydraulic tanks**
- **Hoist system**
  - 1325 l / 350 gal
- **Brake and steering**
  - 473 l / 125 gal

**Braking Systems**

- **Service**
  - Standard front: wheel speed disc, four (4) calipers on a 736 mm/29” I.D. Disc
  - Standard rear: dual disc armature speed, two 635 mm/25” O.D. Disc/Side one caliper/disc
- **Dynamic retarding**
  - 2983 kW/4000 HP max. continuously rated (14 resistors) blown grids.
  - Two speed overspeed retarding. Extended range retarding and reverse retarding

**Steering**

- **(with standard tires)**
  - Vehicle clearance circle: 32.5 m/106 ft
  - Centerline of tire: 28.5 m/93.5 ft SAE
  - Service: Ackerman full-hydraulic steering system with simple, straight forward cross link arrangement
  - Auxiliary: accumulators sized to meet SAE J 1511

**Suspensions**

**Front Suspension System**

- **System design**
  - Double A-frame with inclined king pin for minimum scrub distance
- **Suspension strut**
  - Nitrogen/oil with integral damping and cushioning pad for both over stroke and rebound stroke.
  - High component interchangeability with rear struts

**Rear Suspension System**

- **System design**
  - Three-bar linkage with triangular upper link to safely transfer 100% of all side loads from the frame into the rear axle.
  - Two drag links transfer all longitudinal driving forces directly into the two frame girders
- **Suspension strut**
  - Nitrogen/oil with integral damping and cushioning pad for both over stroke and rebound stroke.
  - High component interchangeability with front struts

The Liebherr rear suspension system is unique in that it avoids problems normally associated with nose cone and other linkage designs. It also allows less side motion of the rear tires during axle oscillation which provides for a wider and more stable stance of the rear suspension struts.

**Dump Systems**

- **Dump angle**
  - 50°
- **Dump cycle**
  - 21 seconds (raise)
  - 14 seconds (power down)
- **Dump cylinders**
  - 330 mm/13” diameter first stage
  - 230 mm/ 9” diameter second stage

**Hydraulics**

- **Pump displacement**
  - 492 cm³ / 30 in³
- **Delivery**
  - 249 l/m / 65.8 gpm @ 1900 RPM
- **Relief pressure**
  - 165.5 bar/2400 PSI
- **Control valve**
  - main spilt spool with integral relief and anticavitation poppets
- **Pilot control**
  - electronic joystick operation
- **Steering and brake**
  - Pump displacement: 130 cm³/8 in³
  - Operating pressure: 179 bar/2600 PSI
  - Relief pressure: 200 bar/2900 PSI
  - Front brakes: 179 bar/2600 PSI
  - Rear brakes: 90 bar/1300 PSI
  - Steering: 179 bar/2600 PSI
  - Accumulator backup: meets SAE J 1511
  - Brakes: (2) 7.6 l / 2 gal
  - Steer: (1) 94.6 l/25 gal
  - Filtration (both systems): 3 high pressure filters, each rated at 99.5% efficiency for particles 6 micron and larger

**Frame**

- **Material**
  - ASTM A710 with high impact resistance (high charpy), high strength (to 95,000 PSI), good fatigue properties, good weldability.
- **Steel castings in stress concentration areas**
  - Closed box structure with multiple tubular cross members and internal stiffeners
- **Welding**
  - Both frame girders welded inside and out with 100% ultrasonic inspection to AWS D 1.1.

Liebherr truck frames were developed using computer aided design, finite element analysis and 3-D modeling. The combination of high strength steel, quality welding and modern manufacturing procedures insures a frame with exceptional durability and superior resistance to high impact loads.
Dimensions
A Wheelbase 6,1 m/20' 0"
B Front track 6,1 m/20' 0"
C Rear track 4,9 m/16' 0"
D Overall length 13,3 m/43' 9"
E Width (standard body) 7,4 m/24' 3"
F Height (over all) 7,8 m/26' 0"
G Height (loading, standard body) 6,7 m/22' 0"

Weights (Standard)
<table>
<thead>
<tr>
<th></th>
<th>Empty</th>
<th>Loaded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kg</td>
<td>lbs</td>
</tr>
<tr>
<td>Front</td>
<td>70 630</td>
<td>155 700</td>
</tr>
<tr>
<td>Rear</td>
<td>86 320</td>
<td>190 300</td>
</tr>
<tr>
<td>Total</td>
<td>156 940</td>
<td>346 000</td>
</tr>
</tbody>
</table>

Dump Body Capacity (Standard)
<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Struck</td>
<td></td>
<td>84 m³/110 yd³</td>
</tr>
<tr>
<td>2:1 Heaped</td>
<td></td>
<td>119 m³/156 yd³</td>
</tr>
</tbody>
</table>

Additional body sizes are available determined by the customer's requirements and specific application. Modifications such as rear extensions, and/or sideboards are also available to provide increased payload capacity.

Turning Radius

<table>
<thead>
<tr>
<th></th>
<th>DIM “A”</th>
<th>DIM “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.00 R57 tires</td>
<td>R 14,25 m/46'9&quot;</td>
<td>R 14,85 m/48'9&quot;</td>
</tr>
</tbody>
</table>

Technical Data
Cab Standard Equipment

- Driver seat – mechanical suspension base
- Dual dome light
- Double shell concept for safety, thermal and acoustical isolation
- Cigarette lighter and ash tray
- Passenger seat w/seat belt
- Tilt steering wheel with telescopic column
- High capacity heater and defroster
- Cab wiring interface w/multi-pin connector
- Environmentally controlled cab includes:
  - Plush upholstery and heavy duty acoustical package
  - Heavy duty thermal insulation
  - Filtered heater air
- Double shell concept for safety and insulation
- Fully adjustable operator seat w/ air suspension and double lumbar support
- Passenger seat w/ mechanical suspension
- Seat belts
- Safety glass all around w/ tinted windshield
- Windshield wiper, single blade, electric
- Rearview Mirrors (right and left)
- Tilt and telescopic steering wheel w/ Horn
- Sun visors (3), dome lights
- Fresh, filtered heater and defroster air
- Circuit breaker panel
- 12 Volt power supply
- Speakers and preparation for radio installation

Instrumentation

- Dash instrumentation
  - Speedometer, Tachometer, Engine fault,
  - Wheel motor air flow, Parkbrake, Steering pressure, Brake pressure (low), Body up, Drive system fault,
  - Ground fault indicator, 24 V system voltage, Fuel gauge, etc.
- Turn signals w/ emergency flashers
- Air pressure gauge with low pressure alarms, visual and audible (not available on airless trucks)
- Engine
  - Hour meter
  - Oil pressure gauge
  - Water temperature gauge
- Warning lights for
  - Engine fault
  - Wheel motor air flow
  - Park brake
  - Steering pressure
  - Brake pressure (low)
  - Body up

Cab Optional Equipment

- ROPS (Roll Over Protective Structure)
- Air- Conditioning with filtered air
- Radio with cassette or CD player

Operator Cab
**Truck Standard Equipment**

- D/C Electric Drive System with blown grids & 3 step Extended Range Retarding
- HD Truck frame (A 710), welded inside and out, tubular cross members with external, independent cross carriage
- Cast steel components in stress areas
- Double A-frame front suspension system with inclined king pin
- Nitrogen/oil suspension struts with 100% internal component commonality front and rear
- Three-bar linkage rear suspension with triangular upper link and two drag links
- Roll-out power module with radiator, engine and alternator on sub frame
- Two stage hoist cylinders
- L&M (Mesabi) radiator
- Large diameter, low RPM radiator fan for reduced parasitic load
- Rockford fan clutch
- Air starter
- 2 HD Batteries
- Engine shutdown at ground level
- Spring-applied, pressure-released park brake
- Accumulator back-up on steering system with auto bleed down
- Accumulator back-up on hydraulic brake system with manual bleed down
- Dual access ladders and deck hand rails
- Dual ladder service access to engine area
- Radiator header tank sight gauge
- Centralized service center with dry break pressure refueling
- Headlights (4)
- Tail lights: Service brake, Dynamic retard, Back up, Turn signals
- Deck mounted back up light – driver side
- Deck mounted clearance lights
- Back-up warning alarm
- Service lights in control box, engine compartment and axle box
- Access ladder lights
- Auxiliary dump, brake, and steering connectors
- Mud flaps – front
- Rear wheel rock ejectors
- Hand held fire extinguishers (2)
- Payload weigh system with in cab display
- Liebherr white paint

**Truck Optional Equipment**

- Electric starter
- Automatic air cleaner dust ejectors
- Sight glass on fuel & hydraulic tank
- Auto lube system
- Centralized service system – additional functions
- 7 step Extended Range Retarding (ERR)
- Diagonal, retractable access ladder
- Additional headlights
- Additional clearance lights
- High density fog lights
- Hub-odometer
- External display for payload weigh system
- Additional mud flaps
- Fire suppression system (multiple actuation options)
- Exhaust heated body
- Body liner/wear package(s)
- Tailgate for coal body
- Canopy spill guards
- Special paint

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**Truck Equipment**