

The Mining Truck

T 252

Maximum Operating Weight: 331 t / 730,000 lbs
Payload Class 181 t / 200 ton



LIEBHERR

Technical Data



Engine

Engines available	
DDC/MTU	12V4000 1398 – 1510 kW/1875 – 2025 HP
Cummins	QSK45 (QSK50, when available), K2000E 1492 kW / 2000 HP
Air cleaners	Donaldson SRG 20 with restriction indicators in cab
L & M (Mesabi) radiator	Reduced parasitic load through large diameter, slow speed radiator fan
Air starter	Electric start – optional
Alternator	24 volt, 75 amp (optional high capacity alternators available)
Batteries	(2) 12 volt, 1150 CCA
Roll-out power module includes	Radiator, engine and alternator on subframe



Electric Drive System

Manufacturer	General Electric
Wheel Motors	GE 788 Statex III Ratios available – 26.8:1 22.3:1
Alternator	GTA-22
Dynamic Retarding	Blown grids (14 element), 3-step extended range retarding and retard speed control Optional: 7-step extended range retarding



Braking Systems

Service	
Standard Front	Wheel speed disc, three (3) calipers on a 1143 mm/45" O.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 maximum continuously rated (14 resistors) blown grids. Optional two speed overspeed retarding and extended range retarding



Steering (with standard tires)

Vehicle clearance circle	30,2 m / 99 ft 2 in
Turning radius	24,7 m / 81 ft (Centerline of tire)
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.



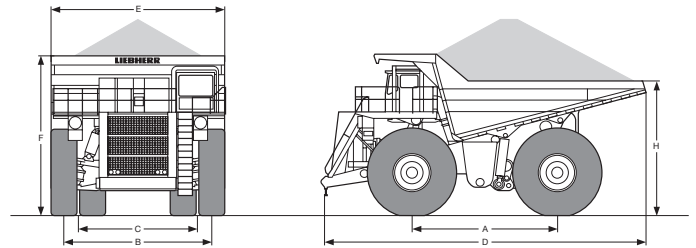
Frame

Material	High strength steel with high impact resistance (high charpy), good fatigue properties and good weldability. Steel castings in stress concentration areas
Design	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*

	m / ft-in
A Wheelbase	5.8 / 19'01"
B Front track	5.9 / 19'03"
C Rear track	4.8 / 15'08"
D Overall length	13.3 / 43'06"
E Width with body shown	7.5 / 24'07"
Width over tires	7.2 / 23'07"
F Height (over canopy)	6.4 / 21'03"
H Height (loading, standard body)	5.6 / 18'04"



Dump System

Dump angle	50°
Dump cycle	20 seconds (raise) 9 seconds (power down)
Dump pressure	165,5 bar / 2400 PSI
Dump cylinders (two stage)	267 mm / 10.5" diameter first stage 203 mm / 8" diameter second stage



Weights*

	Empty		Loaded	
	kg	lbs	kg	lbs
Front	59,330	130,800	109,270	240,900
Rear	88,990	196,200	221,850	489,100
Total	148,320	327,000	331,120	730,000



Dump Body Capacity (Standard)

Struck	76,5 m ³ / 100 yd ³
2:1 Heaped	107,8 m ³ / 141 yd ³

Note: Various body sizes available to suit application



Tires (Radial)

Standard size	37 R57
Optional	40 R57

Turning Radius (Tire Center)

	m / ft-in
37.00 R57 tires	12,34 / 40'06"
40.00 R57 tires	13,60 / 44'07"



Hydraulics

Dump system	
Pump displacement	360 cm ³ / 22 in ³
Delivery	690 l/min. / 180 gpm @ 1900 RPM
Relief pressure	165,5 bar / 2400 PSI
Control valve	Main split spool with integral relief and anticavitation poppets
Pilot control	Electronic joystick operation
Steering and brake systems	
Pump displacement	130 cm ³ / 8 in ³
Delivery	249 l/min. / 66 gpm @ 1900 RPM
Relief pressure	200 bar / 2900 PSI
Operating pressure	179 bar / 2600 PSI
Front brakes	179 bar / 2600 PSI
Rear brakes	
(arm. speed)	93 bar / 1350 PSI
Steering	179 bar / 2600 PSI
Accumulator backup	meets SAE J 1511
Brakes	(2) 7,6 l / 2 gal
Steering	(1) 94,6 l / 25 gal
Filtration (both systems)	3 high pressure filters, each rated at 99.5 % efficiency for particles 6 microns and larger



Fluid Capacities

Fuel tank	3140 l / 830 gal, optional capacities available
Hydraulic tanks	
Hoist system	927 l / 245 gal
Brake and steering	510 l / 135 gal

* with standard 37.00 x 57 tires

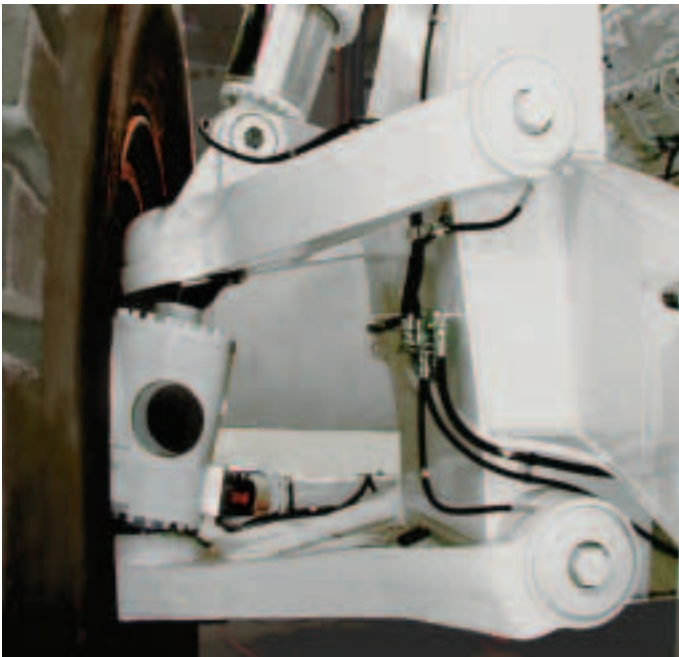
Chassis

Frame

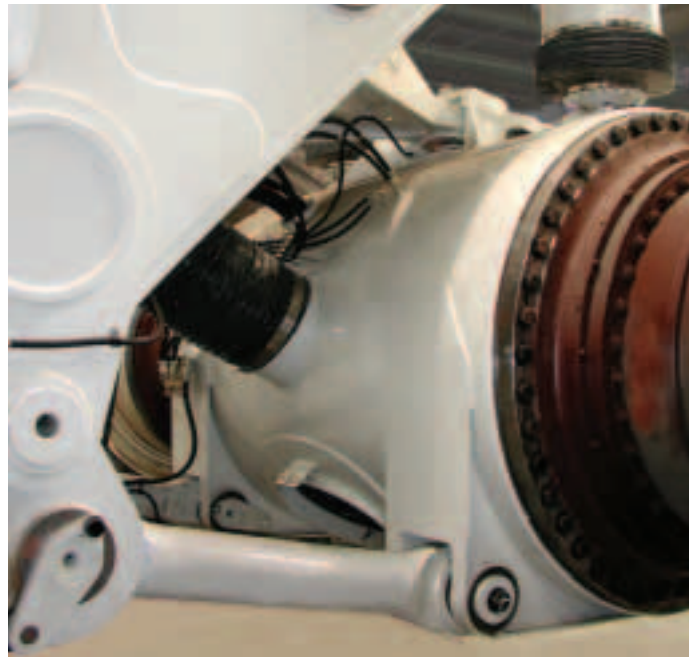
Two rail, hollow box frame manufactured from high strength steel. Torque tubes connect the two frame rails to absorb warping stresses. This, plus the independent cross carriage results in a strong, lighter weight frame. Frame rails are welded inside and out. Stress flow designed cast steel components are used in high stress areas. The unique independent Cross Carriage transfers forces from the rear axle and the dump cylinders in a straight, direct line into the frame rails.



Suspension



The T 252 features a “Double A-frame” Front Suspension. This unique geometry allows the tire contact point to move up and down in a straight line during travel and loading. Immediate and accurate payload weighing is possible since there are no side loads on the struts. Due to the A-frame’s lever action design there is longer vertical wheel travel than strut travel, resulting in reduced tire deflection.



The unique Rear Wheel Suspension replaces the traditional nose cone with two Drag Links and a triangular Rear Control Arm. All forces from the rear axle are transferred into the truck frame in straight lines. Two Suspension Struts transfer all loads from the frame via the top of the axle box directly into the wheels. This allows for a shorter, lighter frame and does not create any torque within the axle box, saving weight.

Service Accessibility

The electrical DC-drive system of the T 252 has few service points. Preventive maintenance and required service for the complete truck are reduced accordingly. All control components for the complete travel drive and secondary systems as well as the resistor grid box for retarding are located on the upper deck for easy and fast access. Ladders left and right allow safe access to the engine compartment.

All joints, bushings and bearings requiring lubrication on a regular basis are connected to six grouped locations serviceable from ground level. Automatic lubrication at predetermined intervals is an option.

All service requiring filters for engine and hydraulic systems are accessible from the ground or from the engine service platforms.



The exclusive Liebherr front wheel suspension transfers less stress into the horse collar. This design provides for a bigger opening inside the horse collar which in turn allows for excellent “walk-around” engine access with service platforms for safe footing.



The lockable service center allows for easy service from ground level for: Fuel, hydraulic systems for hoist, steering and service brakes, coolant “IN” and engine oil.



Air filter gauges are located inside the cab indicating the actual filter status.



Test ports for the sampling of coolant, engine oil, dump and brake/steering hydraulic fluids are accessible from ground.

Safety Features

Access from ground for the components of the steering and dumping system which require regular service.

Safe Access to all engine components. Service platforms on either side provide excellent access.

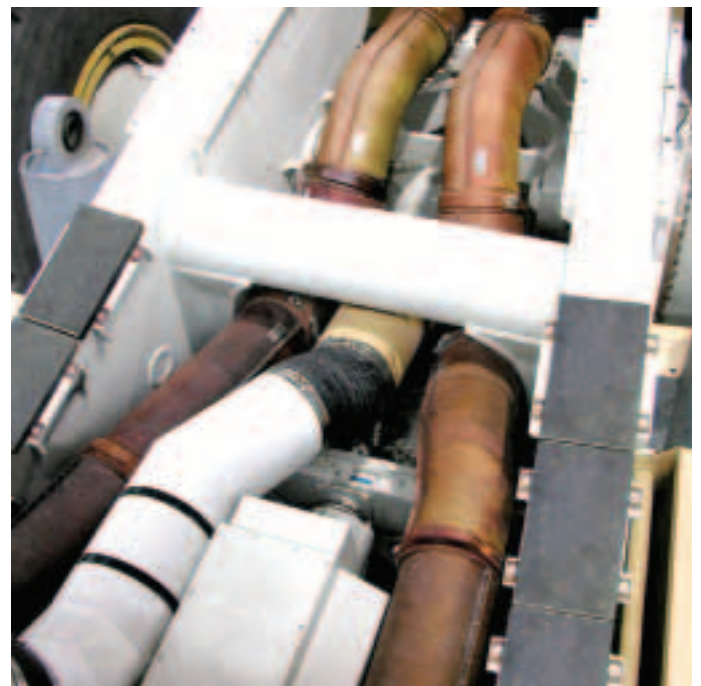
Cab set back for protection in case of a rear end collision. Two stair ladders with handrails lead safely to and from the upper deck, one on either side of the radiator. Other set-ups are optional.

Operator adjustable cruise control for retarding. Will bring truck down to and hold at set speed.

The T 252 system will retard with up to 2983 kW/ 4000 hp on a continuous basis.

Automatic Two Speed Over Speed automatically limits maximum speed by reducing propel torque or by applying retarding power. Separate settings for loaded and empty truck.

Fire Prevention by Design: Fuel and hydraulics carrying components and heat sources are separated as much as feasible. Critical hydraulic hoses are encased in non permeable hose sleeves. Exhaust pipes are covered and insulated by special non burning tubes impervious to oil. They are preshaped to fit each individual pipe section.



Operator Cab



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 connectors
- 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

Truck Equipment



Truck Standard Equipment

- D/C Electric Drive System with blown grids & 3 step Extended Range Retarding
- HD Truck frame, 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
- Fuel gauge on tank
- 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
- Centralized service system – additional functions
- 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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