VOLVO



Volvo Rigid Haulers 95.0 t / 209,440 lb 1,050 hp

R100

Volvo Construction Equipment

R100

The 95-tonne (209,440 lb) Volvo R100 Rigid Hauler is the largest rigid dumper in the Volvo portfolio, proven across the toughest jobsites throughout the world to deliver high uptime, optimum productivity and low total cost of operation.



Ready for the big time

Count on the R100 for high torque, class-leading rimpull and strong tractive effort for confident hauling on tough gradients, while intelligent technologies help optimise fuel efficiency and features including the 60.4 m³ (79 yd³) exhaust-heated V-shaped body, fast body-tipping system, smart productivity tools, robust safety systems, easy service access and high-visibility cab support productivity, uptime and operator performance.



Productivity

- 95-tonne (209,440 lb) payload
- 60.4 m³ (79 yd³) volume
- Premium engine and complete drivetrain design
- High torque, class-leading rimpull and impressive tractive effort
- Fast body-tipping system
- On Board Weighing



Low cost of operation

- Fuel efficiency
- Component durability and reliability
- Optimized weight distribution for superb machine and tire longevity
- Volvo Dynamic Shift Control



Uptime

- Long service intervals
- Easy and safe service access
- Top-level diagnostic data via operator-friendly dashboard
- Ground level fluid level indicators
- CareTrack telematics
- High strength, flexible chassis structure
- Responsive wishbone-type front suspension



Safety

- ROPS/FOPS cab
- Superb visibility
- Low center of gravity for solid stability
- Two standard retardation systems
- Anti-slip steps and secure walkways
- Transmission overspeed protection
- Neutral coast inhibitor
- Fail-safe braking and secondary steering systems



Operator comfort and performance

- Industry leading cab comfort
- Excellent visibility (with 360° bird's eye view with optional 360° camera)
- Fully adjustable Volvo air suspension operator seat and tiltable, telescopic steering wheel
- Bluetooth enabled audio system, climate control, ample storage and legroom
- Easily access displays and responsive fingertip controls
- Remarkably low noise levels



Factory fit oil cooled brakes available

- Oil cooled brakes on both the front and rear wheels
- Improved braking and retardation control
- Faster downhill travel speeds provide longer brake component lifecycles
- Increase total brake area by 50%
- 66% increase in the rear brake lifecycle (only applies to full oil cooled brake model)

Big on efficiency

- The R100 rigid hauler is packed with technology designed to make every drop of fuel count
- Volvo Dynamic Shift Control delivers a premium drivetrain performance and also incorporates Eco Shift Mode, which defaults to the most efficient shift schedule when working on lighter applications – reducing unnecessary fuel consumption
- Featuring a Tier4f engine, the highly efficient R100 offers long service intervals and component lifecycles
- The auto-idle engine shutdown and optional gear sensitive On-Board Weighing further enhance fuel savings and reduce unnecessary engine wear

Fully loaded

- Featuring a true 95-tonne (209,440 lb) payload, and the winning combination of power and performance, the R100 rigid dumper is designed to help you do more
- Thanks to its exhaust-heated V-shaped body, the 60.4 m^3 (79 yd^3) capacity dumper ensures optimum load retention and minimal material carry-back
- The body design further promotes a low centre of gravity for optimum machine stability and manoeuvring, contributing towards high levels of control and operator performance
- For long lasting productivity, the body is manufactured from high impact and high abrasion resistant steel. Enhance productivity with our 10-10-20 payload policy.

Safety at the center

- All machine systems on the R100 rigid dumper – such as the easily accessible emergency shutdown switches and isolation lock outs – have been designed and verified to protect the safety of you and your crew
- From the ROPS/FOPS-certified cab, experience superb visibility, enhanced by 360° camera, an integrated feature that helps you keep an eye on the surrounding job site traffic
- Machine safety inhibitors take automatic action should an irregular system parameter be detected, helping to protect both operator safety and the machine from a high-cost failure

Access more uptime

- Engineered with uptime in mind, the heavy-duty dumper is simple and uncomplicated in its design, purpose built to help you achieve optimum productivity shift after shift, day in and day out
- The machine design is purpose-built to meet the demands of tough job site conditions, including conveniently grouped service points for efficient maintenance tasks
- Add a range of aftermarket solutions and the result is optimum machine availability

Four wheel, oil cooled disk brakes available

- Providing improved braking and retardation control, faster downhill travel speeds and longer brake component lifecycles
- All wheel oil cooled brakes increase productivity while reducing maintenance and operating costs



Smooth operation

- Offering 360° visibility, responsive steering, ergonomic controls, low noise and solid stability, the Volvo cab is as good as it gets
- Enjoy superior ride quality and comfort in the robust R100 rigid dumper, equipped with variable hydraulic wishbone-type suspension and viscous-mounted cab for minimal ground impact and vibrations
- The responsive, low-effort steering system and geometry, combined with the suspension, optimizes manoeuvrability by minimizing lean on tight corners
- With the R100 rigid dumper, heavy-duty hauling has never felt so easy



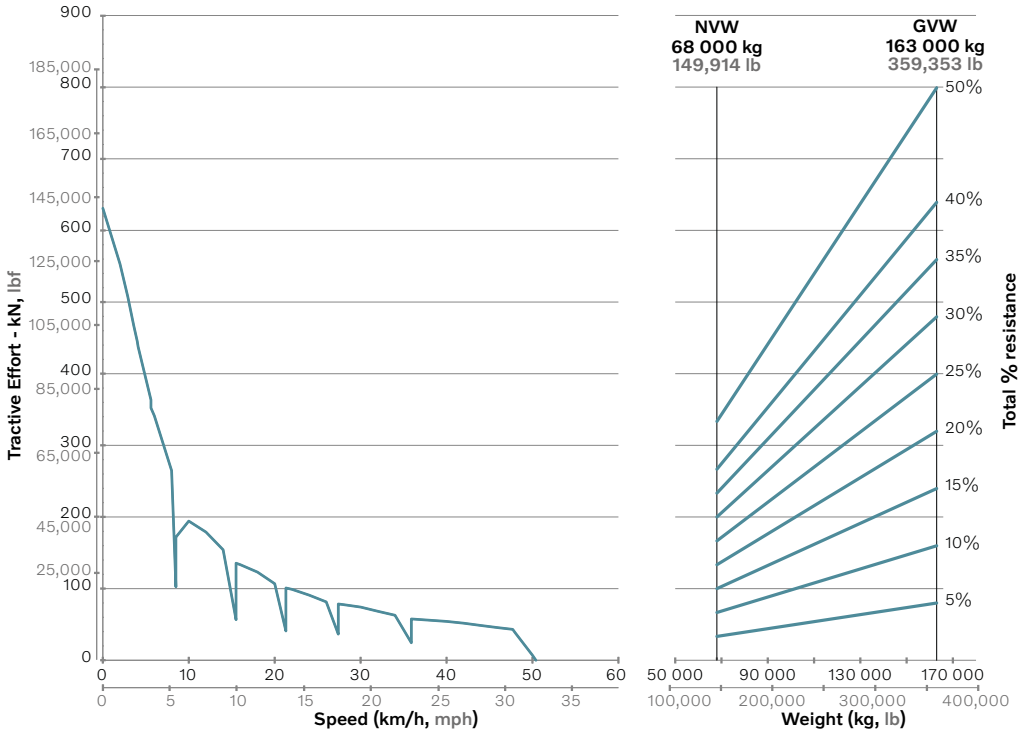
Volvo R100 in detail

Engine		
Model		Cummins QST30 aftercooled Stage V / Tier 4f, 783KW
Type		Charge air cooled to change to aftercooled 2 X High speed electronic control modules
Cylinder/configuration		12 / V-Configuration
Displacement	l (in³)	30.5 (1,861)
Bore x Stroke	mm (in)	140 x 165 (5.51 x 6.5)
Max. power at	rpm (rps)	2,100 (35)
Gross power (SAE J1995)	kW (hp)	783 (1,050)
Net power	kW (hp)	726 (974)
Max. torque at	rpm (rps)	1,300 (21.7)
Gross torque	Nm (lbf ft)	4,629 (3,414)
Engine emissions		Meets EPA / CARB 40 CFR1039 and CARB 40 CFR1068 non road machinery directive Tier 4f (EU) 2016/1628 Stage V
Electrical		40 Amp alternator
Altitude - electronic derate	m (ft)	2,750 (9,022)
Steering System		
Primary steering hydraulic pressure is provided by an independent nitrogen charged hydraulic accumulator supplied by a pressure compensating piston pump. The accumulator circuit provides instant, uniform steering response regardless of the engine speed. Pilot operated remote mounted orbitrol control valve delivers light, responsive steering control. Secondary steering is provided by an independent nitrogen charged hydraulic accumulator. The accumulator stored pressure is verified to provide safe navigation of the truck in the event of a primary hydraulic failure. The secondary steering application is independent of any electrical/powertrain source, even if there is a failure of engine, transmission or vehicle electrical system.		
Maximum tire steering angle	°	39
SAE turning radius	mm (ft in)	11,496 (37'9")
Clearing radius	mm (ft in)	13,062 (42'10")
Axles		
The rear wheels are driven through a double reduction drive axle. Torque multiplication takes place through the bevel gear differential, then transmitted through fully floating shafts to the planetary reduction gears in the wheel hubs where final torque multiplications takes place.		
Standard		
Differential ratio		2.16 : 1
Planetary reduction		13.75 : 1
Overall drivetrain reduction		29.7 : 1
Optional		
Differential ratio		Traction Bias Differential
Planetary reduction		The automatic spin reducing function is provided by means of a multi-plate friction clutch mounted to one side of the gears in the differential assembly. The 2 side (pinion) gears have a friction link (bias torque) between them which reduces the risk of one wheel spinning freely should the truck encounter slippery or loose ground surface conditions.
High Speed Planetary		Flat or Low-relief terrain
Frame		
Fabricated from box-section steel rails with high-strength steel castings in key stress locations absorbing the worksite impacts for long durable lifecycles. The closed 'horse collar' allows for flexibility in the frame to dissipate twists and loads while incorporating a reserve of structural strength well in excess of that required to absorb the stresses imposed by high impact loading and when travelling on uneven, high rolling resistance applications. Fuel and hydraulic tanks suspended mounts off the frame.		
Body		
Tapered profile with longitudinal v-slope floor plate (Double V-type body) that provides excellent center of gravity for load profile stability on all hauling conditions. Manufactured from high abrasion and impact resistant steel (Hardox 400) for superior lifecycle. Horizontal side stiffeners dissipate shock loads across the entire side plate. Mounted on 'floating' pins for minimal structural stress during empty and full transportation. NB. Hardox 400 Specification Body steel 360-440 BHN Body, yield strength 1000 MPa Body, tensile strength 1,250 N/mm²		
Plate thickness		
Floor	mm (in)	20 (0.79)
Sides	mm (in)	10 (0.39)
Front	mm (in)	10 (0.39)
Body volume		
Stuck	m³ (yd³)	41.1 (53.8)
Body volume, SAE 2:1 heap	m³ (yd³)	60.4 (79)
Tires and Rims		
Tires Type		27-49
Rims		19.5

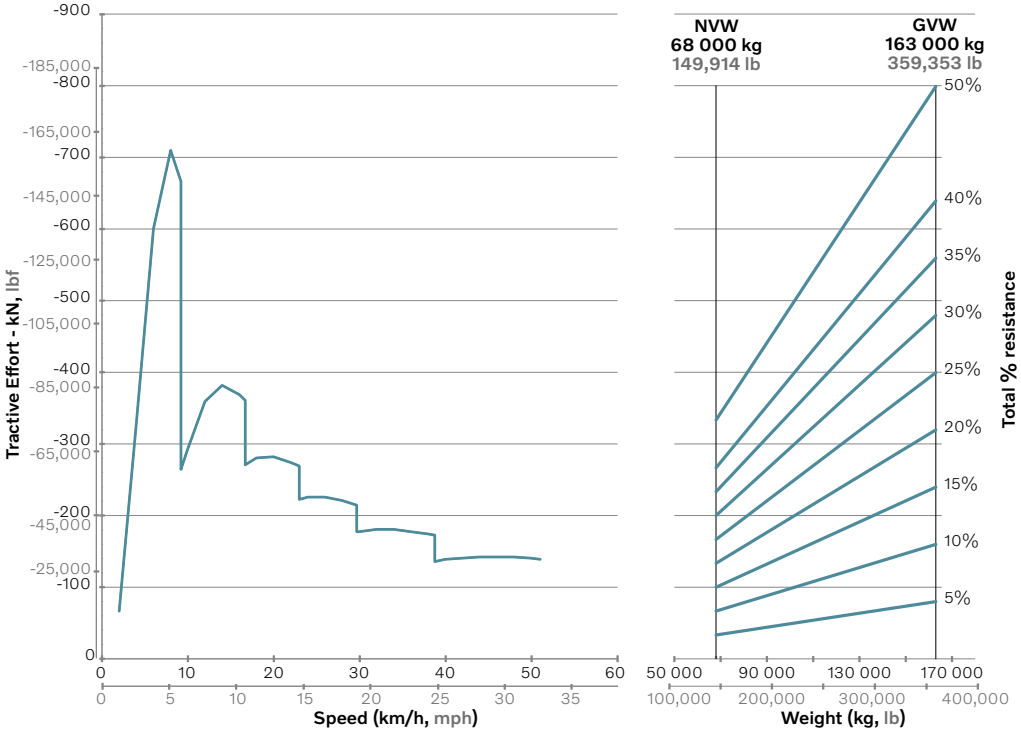
Drivetrain		
Transmission		Allison H8610 ORS
Assembly		Planetary gear type transmission with integral torque converter and hydraulic fluid retarder. Electronically controlled connected to engine system via CANBUS. Automatic lock up in all speed ranges. Mounted mid-chassis for ease of access and excellent machine weight distribution. 9000 series transmission is also available.
Electronic control		CEC5
Maximum speed, forward/reverse		
1st gear	km/h (mph)	9 / 6 (5.6 / 3.7)
2nd gear	km/h (mph)	16 (9.9)
3rd gear	km/h (mph)	22 (13.7)
4th gear	km/h (mph)	28 (17.4)
5th gear	km/h (mph)	37 (23)
6th gear	km/h (mph)	50 (31.1)
Suspension		
Front: Independent self contained Macpherson type, variable rate (Nitrogen/Oil) suspension struts with lower wishbone. Widely spaced for high levels of machine stability and easy maneuverability. Rear: Independent self contained variable rate (Nitrogen/Oil) - invertly mounted - suspension struts connected to chassis via trailing A-frame and lateral stabilizer bar.		
Maximum front strut stroke	mm (in)	244.6 (9.6)
Maximum rear strut stroke	mm (in)	165.1 (6.5)
Brake System		
Fulfills ISO 3450 : 2011 for off-road machinery		
Front brakes type		Independent hydraulic apply, dry disc single caliper. Incorporating independent nitrogen / hydraulic pressure accumulator for instant braking response and reserve pressure. Oil cooled brake: optional / Dry brake: standard.
Front brake diameter	mm (in)	965 (38)
Front brakes lining area	cm² (in²)	2,015 (312)
Rear brakes type		Independent force cooled, oil immersed, multi-disc enclosed brakes. Twin piston, service and park / emergency brake. Emergency brake spring apply / hydraulic release (SAHR Brake). Service piston is used for rear brake retardation for safe machine control.
Rear brake lining area	cm² (in²)	87,567 (13,573)
Hoist		
Hydraulic system conforms to ISO 4406		
System relief pressure	MPa (psi)	190 (27,557)
Pump output flow rate	l/min (gal/min)	554 (146)
at	rpm (rps)	2,100 (35)
Body raise time	s	11
Body lower time	s	13
Service Refill		
Engine crankcase and filters	l (gal.)	132 (34.9)
Transmission and filters	l (gal.)	91 (24)
Cooling system	l (gal.)	344 (90.8)
Fuel tank	l (gal.)	1,180 (311)
DEF/AdBlue® tank	l (gal.)	98 (25.9)
Steering hydraulic system (total)	l (gal.)	61 (16.1)
Body hydraulic tank	l (gal.)	420 (111)
Planetaries (total)	l (gal.)	78 (20.6)
Differential	l (gal.)	95 (25.1)
Front ride strut (each)	l (gal.)	34 (9)
Rear ride strut (each)	l (gal.)	36.6 (9.7)
Power take off	l (gal.)	4 (1.06)
Weight		
Chassis with hoists	kg (lbs)	55,080 (121,430)
Body standard	kg (lbs)	16,200 (35,715)
Net weight	kg (lbs)	71,280 (157,145)
Maximum payload	kg (lbs)	95,000 (209,439)
Maximum gross weight*	kg (lbs)	166,280 (366,584)
Weight distribution (axles)		FRT / REAR
- Empty	%	48 / 52
- Loaded	%	33 / 67
*Target gross vehicle weight with options, full fuel tank and target payload.		
Sound Level		
Sound level in cab according to ISO 6396/SAE J2105		
L_{pA}	dB	78
External sound level according to ISO 6395/SAE J2104		
L_{WA}	dB	0

Specifications

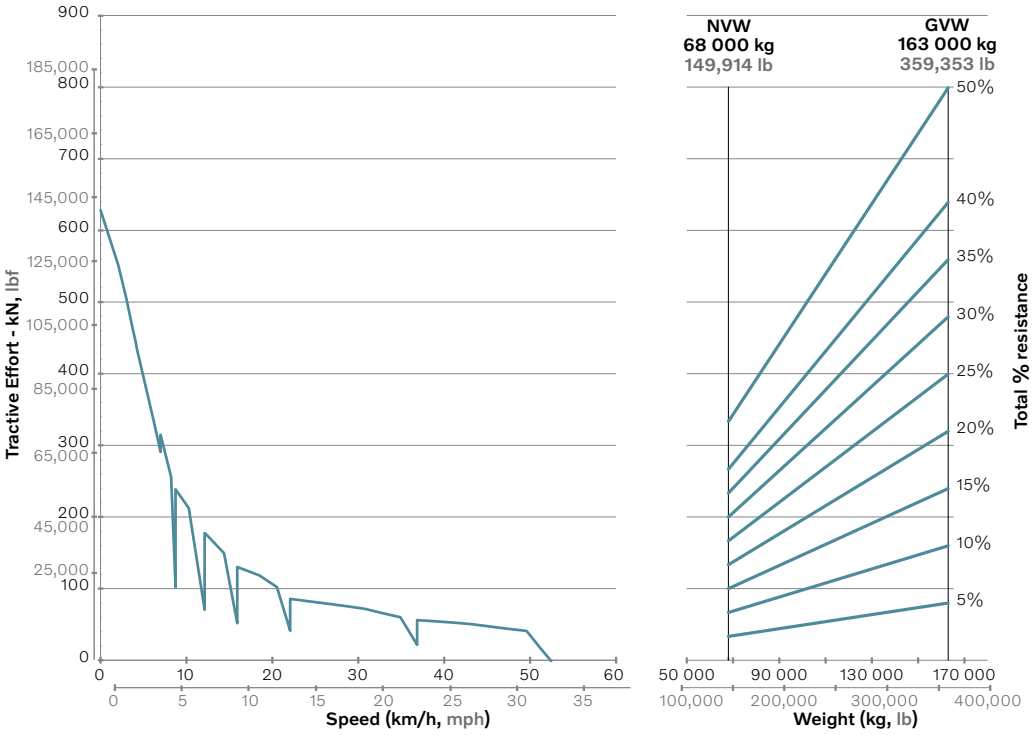
Gradeability - R100E 8610 ORS



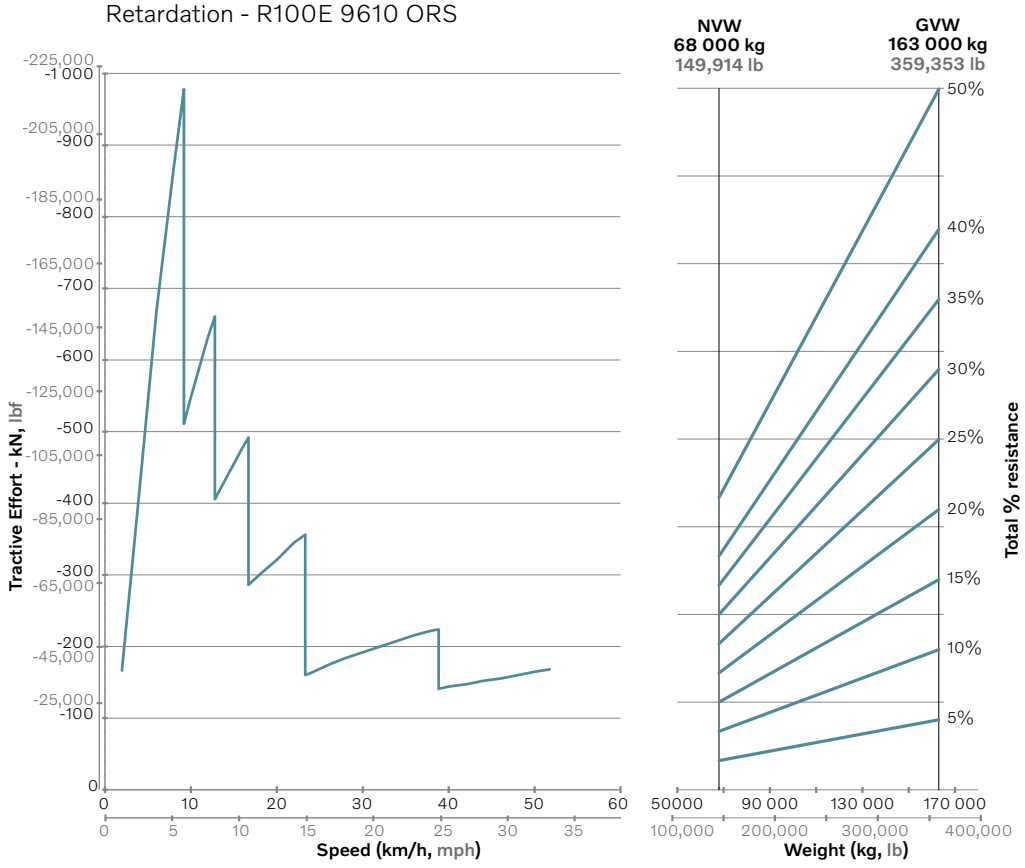
Retardation - R100E 8610 ORS



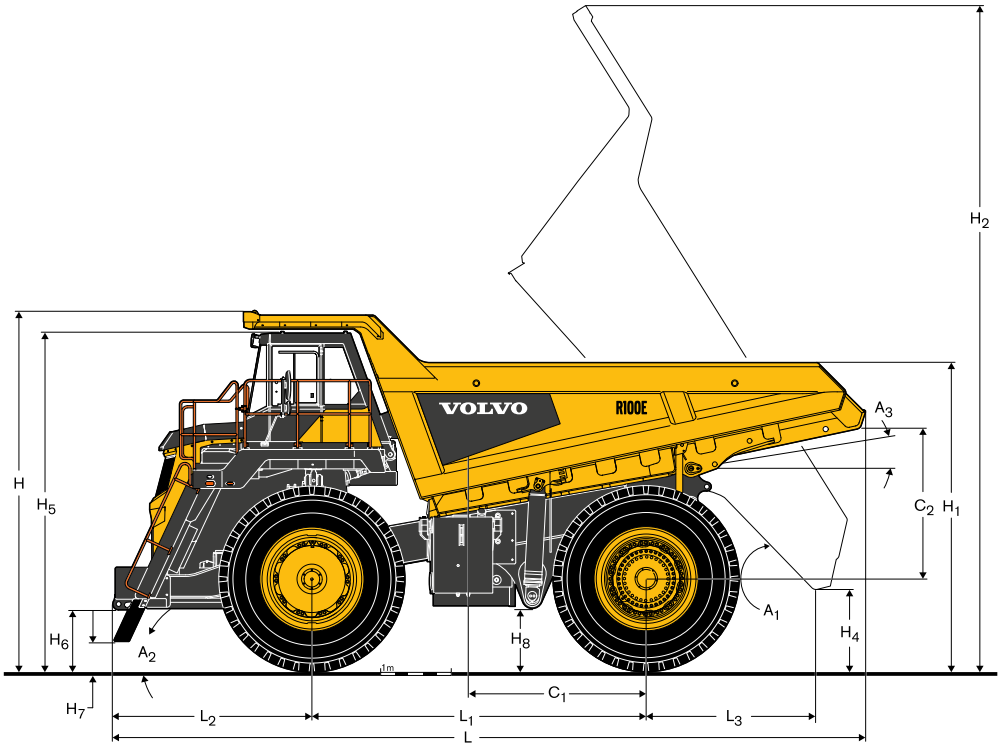
Gradeability - R100E 9610 ORS

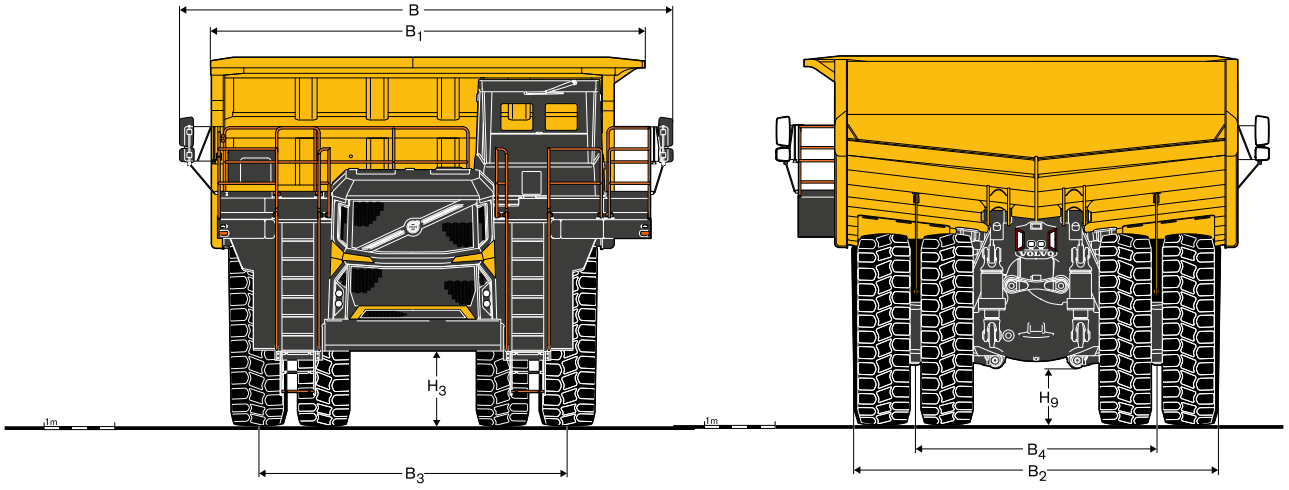


Retardation - R100E 9610 ORS



Specifications





DIMENSIONS

Description		Unit			
H	Overall height	mm	ft in	5,070	16’8”
H_1	Loading height	mm	ft in	4,380	14’4”
H_2	Raise height	mm	ft in	9,576	31’5”
H_3	Front axle ground clerance	mm	ft in	675	2’3”
H_4	Tail clearance	mm	ft in	1,042	3’5”
H_5	Cab height	mm	ft in	4,825	15’10”
H_6	Bumper ground clearance (no TH)	mm	ft in	956 (785 to tow hook)	3’2” (2’7” to tow hook)
H_7	Ladder ground clearance	mm	ft in	598	1’12”
H_8	Frame ground clearance	mm	ft in	806	2’8”
H_9	Rear axle ground clearance	mm	ft in	785	2’7”
B	Overall width	mm	ft in	6,986	22’11”
B_1	Body width	mm	ft in	5,706 (Not including cab guard)	18’9” (Not including cab guard)
B_2	Rear over tires	mm	ft in	5,042 (5,147 at SLW)	16’7” (16’11” at SLW)
B_3	Front track	mm	ft in	4,403	14’5”
B_4	Rear track	mm	ft in	3,420	11’3”
L	Overall length	mm	ft in	10,922	35’10”
L_1	Wheel base	mm	ft in	4,850	15’11”
L_2	Center front axle to bumper	mm	ft in	2,890	9’6”
L_3	Center rear axle to tipped tail	mm	ft in	2,440	8’0”
SAE_{TR}	SAE turning radius	mm	ft in	11,494	37’9”
C_{TR}	Clearance turning radius	mm	ft in	13,062.4	42’10”
A_1	Body dump angle	°		47	
A_2	Approach angle	°		22.5 (19 to tow hooks)	
A_3	Frame angle	°		10	
C_1	C of G (horizontal) unladen	mm	ft in	2,298	7’6’’
C_2	C of G (vertical) unladen	mm	ft in	764	2’6’’
C_1	C of G (horizontal) laden	mm	ft in	1,611	5’3’’
C_2	C of G (verical) laden	mm	ft in	1,952	6’5’’

Vehicle measurements assumptions / variables

Measurements to be taken on flat ground
Truck should be unladen
Bridgestone VRLS Tires should be used
Tire pressure should be set as per manual
Suspension should be set at normal operating height

Machine Configuration	Unit		R100 Oil Cooled Front Brake		R100 Dry Front Brake	
Front Brake Area	cm^2	in^2	47,151	7,308	2,015	312
Rear Brake Area	cm^2	in^2	87,567	13,573	87,567	13,573
Number of Friction Discs - F / R			7 / 11		0 / 11	
Downhill 10% Speed	km/h	mph	26	16.2	20	12.4
Downhill 15% Speed	km/h	mph	19.5	12.1	15	9.32
Net Vehicle Weight	kg	lb	72,245	159,273	71,280	157,145


VOLVO


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Equipment

STANDARD EQUIPEMENT
Engine
Air cleaner with aspirator (vacuum)
Turbocharged and aftercooled
Direct drive fan
Electronically controlled with Shift Energy Management (SEM)
Engine safe mode
Fuel filter/water separator
Pre-lube system
Sump guard
Engine enclosures (rubber)
Drivetrain
Full automatic transmission with manual override
Shift Energy Management
Torque converter with automatic lockup
Volvo Dynamic Shift
Double reduction planetaries for increased rimpull
Electrical system
Alternator
Batteries
Battery disconnect switch (tag lock out)
Engine disconnect switch (tag lock out)
Emergency engine shutdown (ground level)
Direction indicators and hazard warning
Lights - side, tail, stop and headlights
LED tail lamps
Power ports - 12V and 24V
Reverse alarm
Reverse lights
Brake system
Hydraulically operated system with independent front and rear control systems
Park brake - electric switch, spring applied hydraulic release
Secondary brake - pedal controlled, modulates rear park brake piston
Retardation - finger tip control of retarder through lever mounted on the steering column, giving modulated pressure control of the rear oil cooled brakes (in 6 incremental performance levels) or activation of the transmission retarder (one performance level)
Body
Rock ejectors

STANDARD EQUIPEMENT
Safety
Anti-slip steps and platforms
Body down indicator
Body - operator guard LHS
Body - up locking pins
Body - up reverse to neutral inhibitor
Body - up shift inhibitor
Brakes - independant front and rear systems
Secondary brake foot pedal
Emergency SAHR brake
Battery disconnect switch (tag lock out)
Engine diconnect switch (Tag lock out)
Emergency engine shutdown (ground level)
Cab - ROPS and FOPS
Electro magnetic compatibility
Handrails on steps and platform
Horn
Neutral start inhibitor
Engine overspeed protection
Neutral coast inhibit
Programmable max. travel speed
Operator safety belt
Operator's field of view
Rear view mirrors
Retarder - transmission
Retarder - rear brake
Secondary steering
Instructor's seat with safety belt
Vibration 2002/44/EC
Windscreen washers
Windscreen wipers
Comfort
Air suspended seat
Heating, Ventilation and Air Conditioning - HVAC
Interior lights
Radio - Bluetooth
USB power take-off
Cup holder
Insulation thermal and acoustic
Storage compartments
Sun visor
Tilt/telescopic steering wheel
Tinted glass
Operator information interface
MacPherson type front suspension with lower wishbone
Exterior
Mud flaps
Diagnostic terminal
Front and rear tow points
Service and Maintenance
Pressure check points
Tires
Standard Bridgestone tires

OPTIONAL EQUIPMENT
Engine
Fast fuel
High Idle
Drivetrain
Traction bias differential
Inline fuel heater
9000 series transmission
Transmission sump guard
Planetary gearing (high speed)
Electrical system
Heated and adjustable electrical mirrors
Remote jump start points
Working light kit
LED headlamps
Cab
Cab heater (-40°C)
Coolbox (CAB)
Driver seat armrests
Cabin air filter (HEPA)
Body
Onboard weighing system
Body Exhaust heating
Body Extensions upon request
Body Liner Plates (full weight)
Body Liner Plates (half weight)
Body Spill Guard
Body (three piece)
Manual body down
External indicator lights (Onboard weighing system)
Canopy extension (Right side)

OPTIONAL EQUIPMENT
Safety
360° Camera system
Fire suppression system
Fire Extinguisher (cab)
First Aid Kit (cab)
Orange flashing beacon
50% front brake (Oil cooled Brakes)
Service and Maintenance
Quick oil drain kit
-40°C Arctic Kit
Central (Beka) autolube
Service light kit
Toolkit (hand)
Engine heater (240 Volt Plugin)
Mud guards (Extended)
Caretrack (3 year extended subscription)
Central Autolube (SKF)
Service access step (front suspension arm)
Hood covers (hinged)
Tires
Bridgestone standard supply
VRLS
VMTS
Michelin tires
XDR2-B
XDT-A4
XKD1A
XDRA
TPMS Tyre pressure monitoring system

Not all products are available in all markets. Under our policy of continuous improvement, we reserve the right to change specifications and design without prior notice.
The illustrations do not necessarily show the standard version of the machine.

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