

Volvo Construction Equipment  
Building Tomorrow



# R100

Volvo Rigid Haulers 95.0 t 1 065 hp



# WELCOME TO OUR WORLD

Welcome to a world of industry leading machinery. A world where imagination, hard work and technological innovation will lead the way towards developing a future which is cleaner, smarter, and more connected. A world supported by the enduring values of the Volvo Group. A world of stability, sustainability and innovation. A world which we put our customers at the heart of.

Welcome to the world of Volvo Construction Equipment – we think you're going to like it here.

## Working harder, working smarter

For over 180 years Volvo has been a pioneer in the design and manufacture of machines which set the standard for efficiency, performance and uptime. Across our range of excavators, wheel loaders and haulers, our reputation for engineering excellence is unrivalled, which means whatever your operation or application, we can provide a total fleet solution to help you succeed.

Building on our proud history, the Volvo Concept Lab continues to create cutting-edge ideas and innovative concepts, to ensure we offer customers machines which work harder and smarter long into the future.



## Solutions for you

Our industry leading machines are just the start of your relationship with Volvo. As your partner, we have developed an extensive range of additional solutions to help you improve uptime, boost productivity and reduce costs.

### Designed for your business

Structured across nine blocks, our portfolio of products and services are designed to complement your machine's performance and boost your profitability. Simply put, we offer some of the best guarantees, warranties and technological solutions in the industry today.

### There when you need us

Whether you're buying new or used, our global network of dealers and technicians offer around-the-clock support, including machine monitoring and world-class parts availability. It's the basis of everything offered by Volvo Services, so you can be confident we've got you covered right from the start.

**BUILDING TOMORROW**

# Drive your costs down

Drive your operating costs down with the established Volvo R100. Featuring a Stage V engine, the highly efficient rigid hauler offers long service intervals and component lifecycles. Productive, reliable and proven on job-sites throughout the world, make the R100 your partner for all mining and quarrying applications.

## Designed for distance

Save time and money with the R100. The heavy-duty machine is engineered to extend service intervals, helping you cut maintenance costs and optimize uptime. Achieve unbeatable long-term value and longevity of major components with our reliable hauler.



## Heavyweight hauler

Go the extra mile with the optimally balanced R100. Offering a low center of gravity and even weight distribution, the solid machine spreads the load impacts and structural stresses equally across the truck. The outcome is superb machine and tire longevity leading to significantly reduced operating costs. Leave it to Volvo to find the right balance.



## Long life, low costs

Component longevity is key to a low cost of operation. That's why your machine is rigorously tested under extreme working conditions to meet high component lifecycles industry standards. Do more in the long haul with the R100 promoting, as a standard, two retardation systems for high levels of safe performance, while safeguarding primary brake life.



## Volvo Dynamic Shift Control

Haul it all thanks to our fully automatic adaptive transmission gearshift patterns, further enhanced and payload sensitive if equipped with our On-Board Weighing option. Adapting to varying conditions, Volvo Dynamic Shift Control delivers productive performance through a smooth, consistent ride and low fuel consumption.





# BIG ON EFFICIENCY

Move more with less fuel thanks to the latest technology built into the R100 rigid hauler. 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. The auto-idle engine shutdown and optional gear sensitive On-Board Weighing further enhance fuel savings and reduce unnecessary engine wear.



# FULLY LOADED

Offering a true 95-tonne payload, the R100 is designed to do more. Thanks to its optional exhaust-heated V-shaped body, the 60.4 m<sup>3</sup> capacity hauler ensures optimum load retention and minimal material carry-back. For long lasting performance, the body is manufactured from high impact and high abrasion resistant steel. Enhance productivity with our 10-10-20 payload profile policy (please ask your local dealer for more detailed information).

# Move more, earn more

Meet production targets faster with the largest rigid hauler in the Volvo portfolio. Offering the winning combination of power and performance, the 95-tonne machine hauls more tonnes per hour. Move more and earn more with Volvo.

## Move more – faster

Get the job done with the R100, powered by the premium engine. Delivering high torque capabilities, the combined drivetrain provides unparalleled pulling performance and class-leading rimpull for optimum travel time. Thanks to the fast body-tipping system, you can count on the R100 to achieve fast cycle times for an all-round efficient performance.



## Up to the challenge

No terrain is too deep or steep for the R100. Thanks to the complete drivetrain design and configuration, the hauler yields impressive tractive effort, enabling you to tackle tough job site conditions and navigate gradients effortlessly. With high drive axle multiplication, the machine delivers high levels of rimpull for excellent performance on steep slopes.



## Real-time tonnage

Unlock the secret to your hauler's productivity using our optional On-Board Weighing technology from Volvo. The integrated system ensures the machine moves the optimum safe payload and logs all transported loads for complete production management, providing real-time data on the on-board display.



## Smart systems

Take your productivity to the next level thanks to smart systems – such as Volvo Site Simulation – for optimum site efficiency and minimal operational costs. To increase the productivity of your existing and future projects, utilize Volvo Site Simulation, which provides valuable information about your machinery, fleet choices and site configuration.



# Safety at the center

Safety is built into every design element of Volvo machines – and the R100 rigid hauler is no exception. Featuring a ROPS/FOPS-certified cab, proven safety systems and straightforward service access, the R100 is safe from the inside out.

## Solid stability

Featuring a low center of gravity, the rigid hauler is engineered to provide rock-solid stability. Conquer challenging conditions thanks to the expertly designed body and chassis, which work in harmony with the responsive suspension and steering geometry, for ultimate machine stability.



## Safety as standard

The R100 features two standard retardation systems for safer downhill machine control and enhanced ease of operation. The manually applied transmission retarder limits wheel lock-up, especially useful on steeper gradients and in wetter conditions. The modulating rear brake retarder, with automatic apply function, helps to maintain a controlled downhill engine speed.



## Total access

Whether operating or servicing your R100, gain safe and straightforward entry to the machine using anti-slip steps and secure walkways. From the wide platform or ground level, safely complete essential planned maintenance. For added protection and peace of mind – particularly during servicing – use integral safety locks to isolate the machine system.

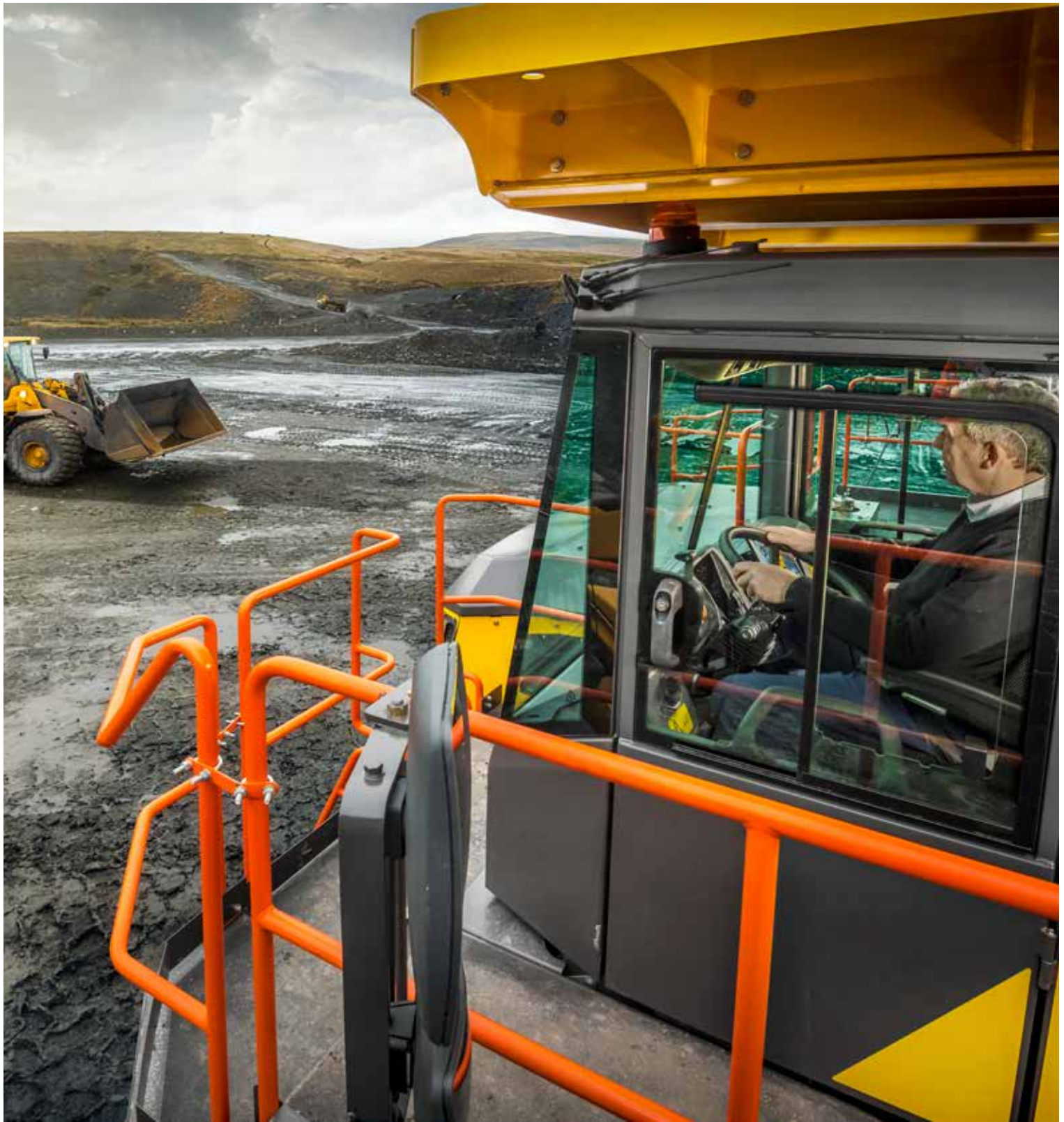


## Always in control

Operate with complete confidence thanks to a host of safety systems, such as the transmission overspeed protection feature, engineered to automatically slow down the machine to within safe operating limits. Machine control is enhanced by the neutral coast inhibitor, which protects the hauler in downhill operations. For added security, the R100 features fail-safe braking and secondary steering systems.







# SAFE FROM THE INSIDE OUT

There's no compromise when it comes to safety. That's why all machine systems on the R100, such as the easily accessible emergency shutdown switches, 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 Volvo Smart View, an integrated feature that helps you keep an eye on the surrounding job site traffic.



# BUILT READY

The robust and reliable R100 delivers superior, long lasting performance. Engineered with uptime in mind, the heavy-duty hauler is uncomplicated in its design, and purpose-built to achieve optimum productivity shift after shift, day in and day out.

# Access more uptime

Access more uptime with the R100, designed to work for you. 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.

## Ease of serviceability

Ease of access not only optimizes safety, but it also maximizes machine uptime. All service points are strategically grouped and within reach from the ground and service platform. To simplify mechanical servicing, the hauler features common-sized bearings and direct bolt-on wheel rim connections. Inside the cab, access top-level diagnostic data using the operator-friendly dashboard for fast analysis and solutions.



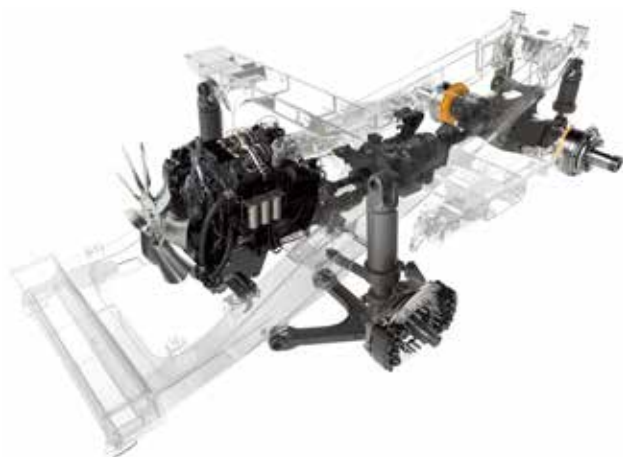
## Machine monitoring made easy

Maximize machine uptime and reduce repair costs with CareTrack – the optional telematics connection enables to remotely monitor the health of your fleet. CareTrack is part of an extensive portfolio of Uptime Services, including maintenance and repair agreements, and extended warranties.



## Durable by design

Built to last, the R100 is durable by design. The high strength, flexible chassis structure and responsive MacPherson strut with lower wishbone connection absorb potentially damaging shocks and vibrations that can occur when operating. Regardless of environmental conditions, you can depend on the hydraulics to remain clean and protected against contamination for optimum machine availability.



## Robust protection

Working in challenging conditions means every component must be protected. With the Volvo R100, you can rely on a strong design and excellent build quality. Ensure long component lifecycle and machine uptime thanks to the latest generation transmission control system, neutral coast inhibitor and overspeed protection features.



# Operator's choice

Not only a highly efficient machine, the R100 also brings operator productivity to the fore – starting with comfort and control. Offering 360° visibility, responsive steering, ergonomic controls, low noise and solid stability, the Volvo cab is as good as it gets.

## Every angle in view

Take on the tough stuff from the comfort of the industry-leading cab, boasting an impressive 360° bird's eye view of the work zone thanks to Volvo Smart View. The operator seat is located to the left side of the cab, enabling you to observe all surrounding areas. Forward visibility is enhanced thanks to the large windscreen, offering excellent line of sight.



## Tailor-made to meet your needs

Customize your comfort for increased productivity throughout the working day. The Volvo air suspension operator seat and tiltable, telescopic steering wheel can be fully adjusted to match your preferred operating position. With the standard Bluetooth enabled audio system, you can stay connected.



## Comfortably productive

Get comfortable with doing more in the pressurized Volvo cab, offering all-around visibility, climate control, and ample storage and legroom. From the adjustable operator seat, easily access displays and responsive fingertip controls, ergonomically positioned to keep the focus on the operation.



## Low noise, high comfort

Stay focused in the Volvo cab, offering remarkably low noise levels. Built-in sound insulation eliminates distracting noises, while the viscous isolated mounted cab and hydraulic suspension system minimizes ground vibrations and surrounding job site noise. Because a happy, comfortable operator enhances overall productivity and performance.





# SMOOTH OPERATION

Enjoy superior ride quality and comfort in the robust R100, equipped with responsive MacPherson strut with lower wishbone connection and viscous-mounted cab for minimal ground impact and vibrations. The responsive, low-effort steering system and geometry, combined with the suspension, optimizes maneuverability by minimizing lean on tight corners. With the R100, heavy-duty hauling has never felt so easy.

# Haul it all

## OPERATORS CHOICE

- Volvo Smart View: 360° visibility
- Air-suspended seat positioned for optimum visibility
- Ergonomic displays and fingertip controls
- Extensive space and storage capacity
- Responsive, low-effort steering, multiadjustable steering wheel
- Low noise and vibration levels



## SAFETY AT THE CENTER

- ROPS/FOPS-certified cab
- Anti-slip steps, secure walkways
- Rock solid stability
- Selectable transmission retarder, Automatic brake retarder
- Fail-safe braking and secondary steering systems
- Neutral coast inhibitor, Transmission overspeed protection



## DRIVE YOUR COSTS DOWN

- 500hr service intervals
- Long component lifecycles: low center of gravity, even weight distribution
- Volvo Dynamic Shift: fully automatic adaptive transmission gearshifting
- Selectable Eco shifting, Auto-idle engine shutdown
- Volvo Site Simulation

## ACCESS MORE UPTIME

- Robust and reliable machine
- Designed for quick and safe access
- Grouped service points, accessible from the ground and service platform
- Common-sized bearings
- Direct bolt-on wheel rim connections
- CareTrack telematics system (option)

## MOVE MORE, EARN MORE

- 95-tonne payload
- Fast body-tipping system
- Class-leading rimpull
- Powerful Volvo engine: high torque at low rpm
- On-Board Weighing system (option)

# 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	30.5
Bore x Stroke	mm	140 x 165
Max. power at	r/min	2 100
Gross power (SAE J1995)	kW	783
	hp	1 065
Net power	kW	726
	hp	987
Max. torque at	r/min	1 300
Gross torque	Nm	4 629
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	2 750

## 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	11 496
Clearing radius	mm	13 062

## 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.

## 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/mm<sup>2</sup>

### Plate thickness

Floor	mm	20
Sides	mm	10
Front	mm	10

### Body volume

Stuck	m <sup>3</sup>	41.1
Heaped 2:1 (SAE)	m <sup>3</sup>	60.4

## Tires and Rims

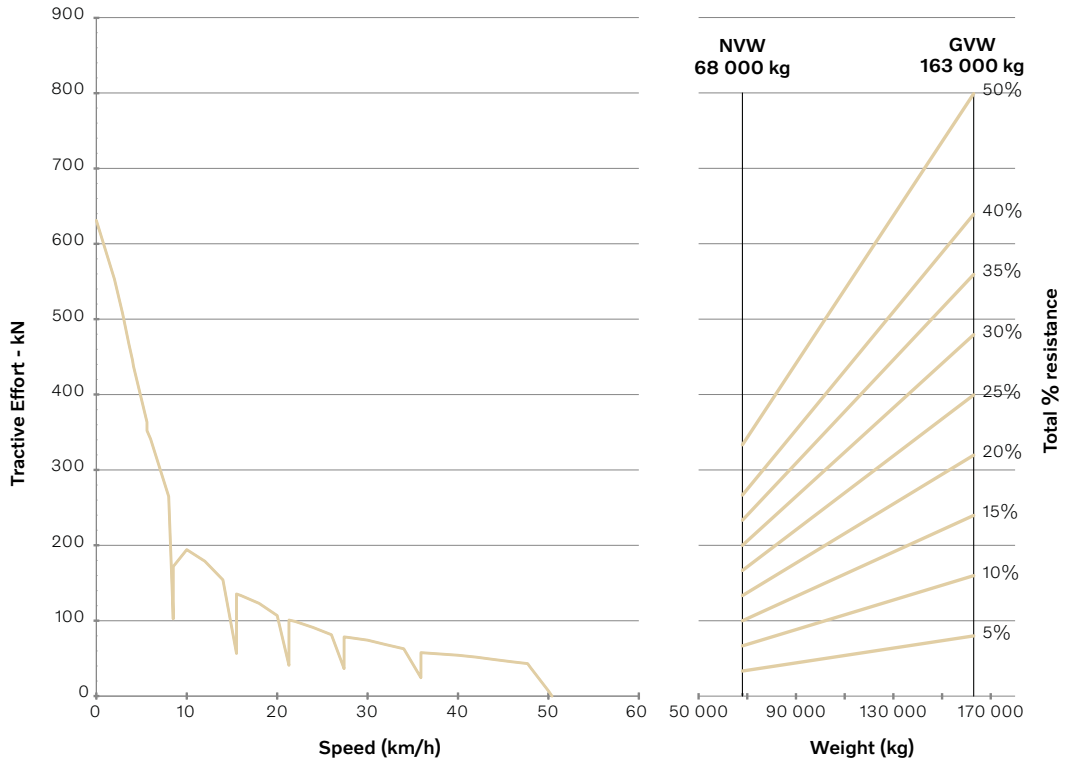
Tires type	27-49
Rims	19.5



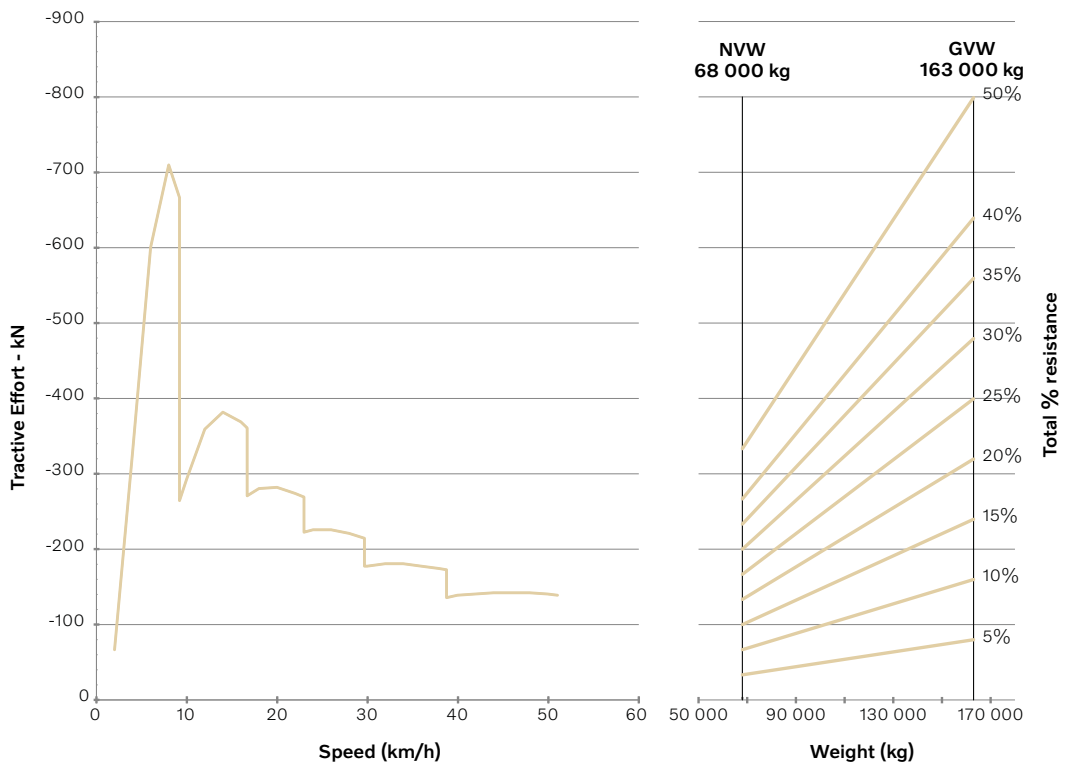
<b>Drivetrain</b>		
Transmission	Allison H8610 ORS	
Assembly	Planetary gear type transmission with integral torque converter and hydraulic fluid retarder. Electronically controlled connected to engine system via CANBUS. Automatic lock up in all speed ranges. Mounted mid-chassis for ease of access and excellent machine weight distribution.	
Electronic control	CEC5	
<b>Maximum speed, forward/reverse</b>		
1st gear	km/h	9 / 6
2nd gear	km/h	16
3rd gear	km/h	22
4th gear	km/h	28
5th gear	km/h	37
6th gear	km/h	50
<b>Suspension</b>		
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	244.6
Maximum rear strut stroke	mm	165.1
Maximum rear axle oscillaton	°	
<b>Brake system</b>		
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.	
Front brake diameter	mm	965
Front brakes lining area	cm <sup>2</sup>	2 015
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	cm <sup>2</sup>	87 567
<b>Hoist</b>		
Hydraulic system conforms to ISO 4406		
System relief pressure	MPa	190
Pump output flow rate	l/min	554
at	r/min	2 100
Body raise time	s	11
Body lower time	s	13
<b>Service Refill</b>		
Engine crankcase and filters	l	132
Transmission and filters	l	91
Cooling system	l	344
Fuel tank	l	1 180
DEF/AdBlue® tank	l	98
Steering hydraulic system (total)	l	61
Body hydraulic tank	l	420
Planetaries (total)	l	78
Differential	l	95
Front ride strut (each)	l	34
Rear ride strut (each)	l	36.6
Power take off	l	4
<b>Weights</b>		
Chassis with hoists	kg	55 080
Body standard	kg	16 200
Net weight	kg	71 280
Maximum payload	kg	95 000
Maximum gross weight*	kg	166 280
Weight distribution (axles)	FRT / REAR	
- Empty	%	48 / 52
- Loaded	%	33 / 67
*Target gross vehicle weight with options, full fuel tank and target payload.		
<b>Sound Level</b>		
Sound level in cab according to ISO 6396/SAE J2105		
L <sub>pA</sub>	dB	78
External sound level according to ISO 6395/SAE J2104		
LWA	dB	-

# Specifications

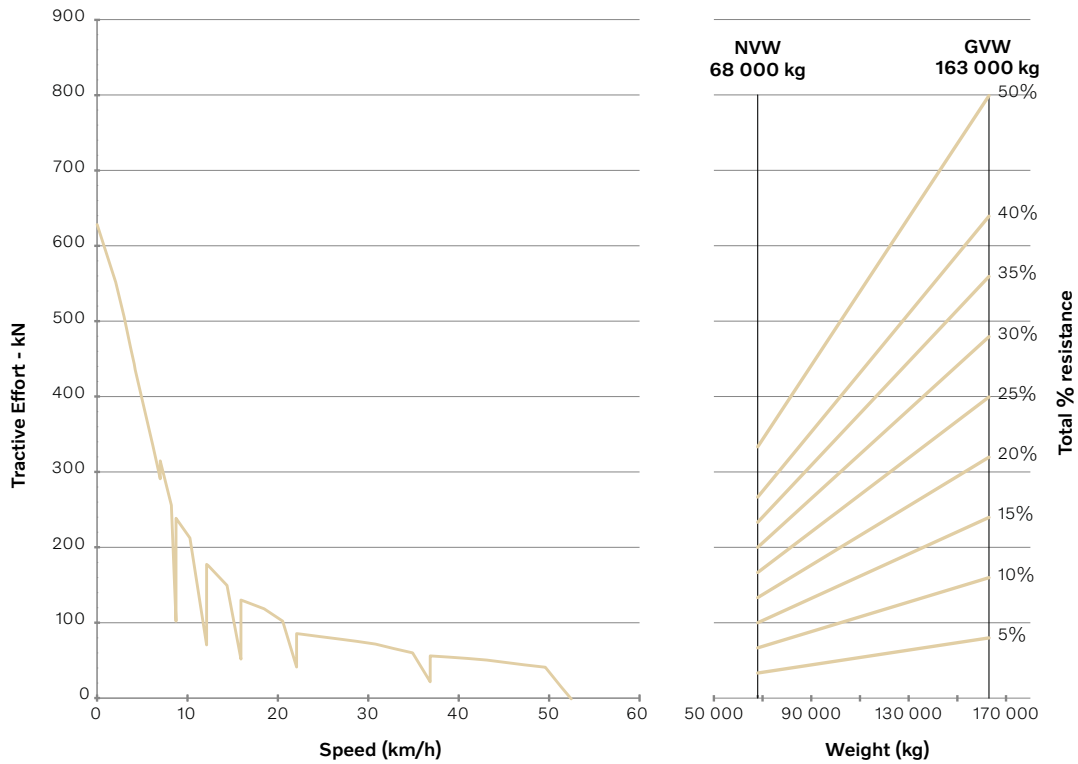
Gradeability - R100E 8610 ORS



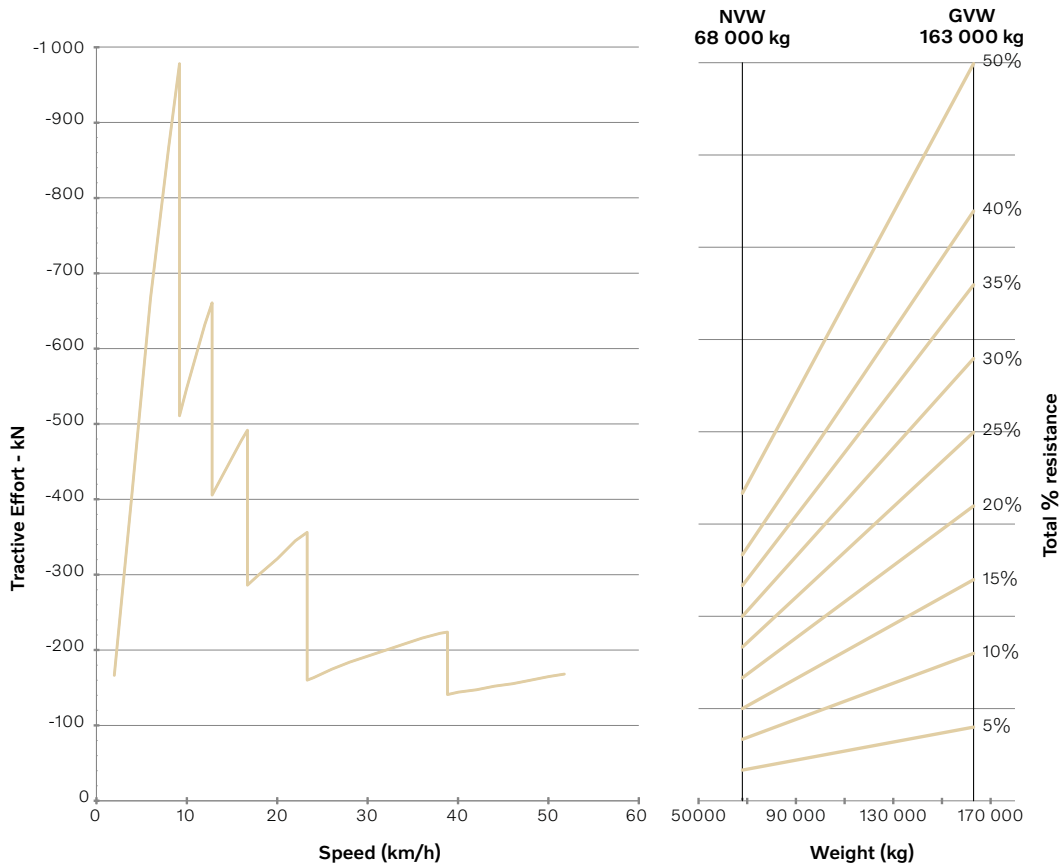
Retardation - R100E 8610 ORS



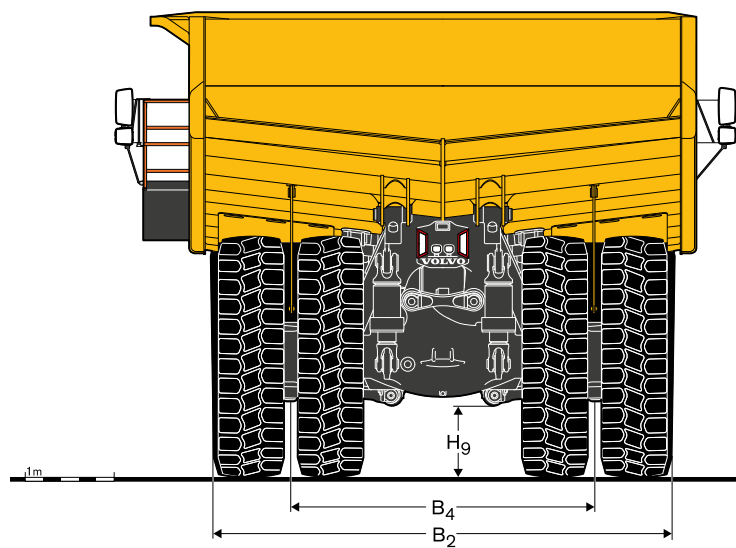
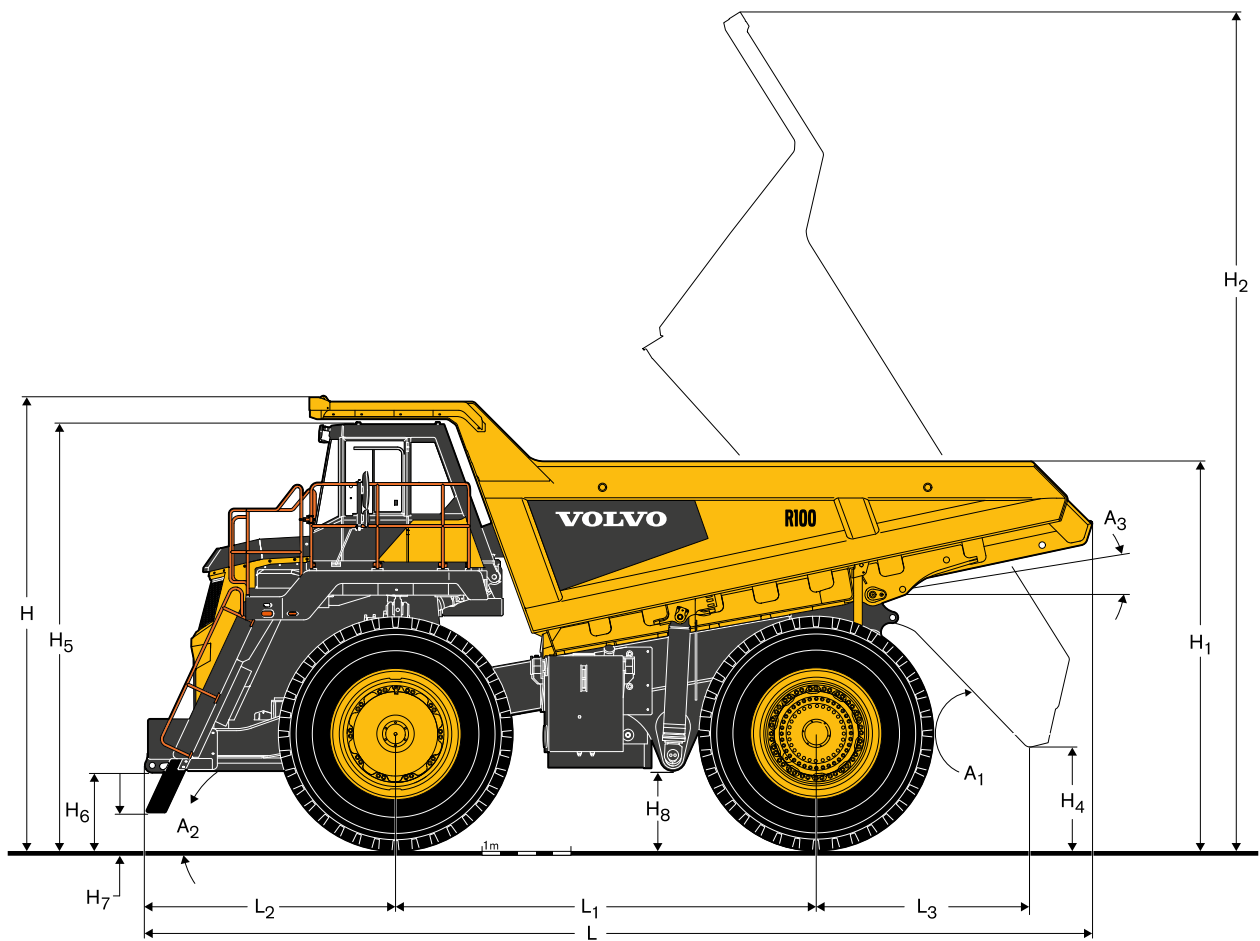
Gradeability - R100E 9610 ORS

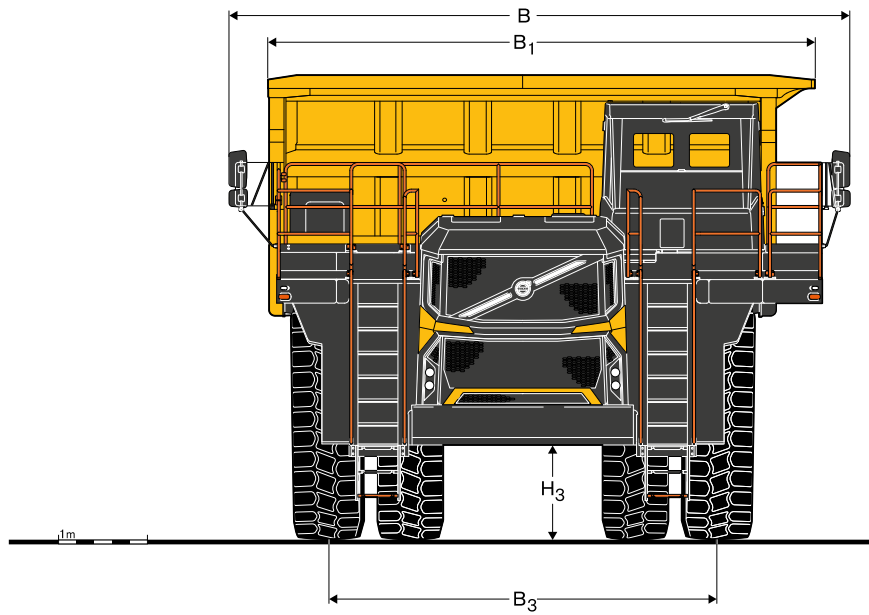


Retardation - R100E 9610 ORS



# Specifications





## DIMENSIONS

Description	Unit	
H	Overall height	mm 5 070
H <sub>1</sub>	Loading height	mm 4 380
H <sub>2</sub>	Raise height	mm 9 576
H <sub>3</sub>	Front axle ground clearance	mm 675
H <sub>4</sub>	Tail clearance	mm 1 042
H <sub>5</sub>	Cab height	mm 4 825
H <sub>6</sub>	Bumper ground clearance (no TH)	mm 956 (785 to tow hook)
H <sub>7</sub>	Ladder ground clearance	mm 598
H <sub>8</sub>	Frame ground clearance	mm 806
H <sub>9</sub>	Rear axle ground clearance	mm 785
B	Overall width	mm 6 986
B <sub>1</sub>	Body width	mm 5 706 (Not including cab guard)
B <sub>2</sub>	Rear over tires	mm 5 042 (5 147 at SLW)
B <sub>3</sub>	Front track	mm 4 403
B <sub>4</sub>	Rear track	mm 3 420
L	Overall length	mm 10 922
L <sub>1</sub>	Wheel base	mm 4 850
L <sub>2</sub>	Center front axle to bumper	mm 2 890
L <sub>3</sub>	Center rear axle to tipped tail	mm 2 440
SAE <sub>TR</sub>	SAE turning radius	mm 11 494
C <sub>TR</sub>	Clearance turning radius	mm 13 062.4
A <sub>1</sub>	Body dump angle	° 47
A <sub>2</sub>	Approach angle	° 22.5 (19 to tow hooks)
A <sub>3</sub>	Frame angle	° 10
C <sub>1</sub>	C of G (horizontal) unladen	mm 2 298
C <sub>2</sub>	C of G (vertical) unladen	mm 764
C <sub>1</sub>	C of G (horizontal) laden	mm 1 611
C <sub>2</sub>	C of G (vertical) laden	mm 1 952

### 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

# Equipment

## STANDARD EQUIPMENT

### 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 transmission retarder or lever mounted on the steering column giving modulated pressure control of the rear oil cooled brakes

### Body

Rock ejectors

## STANDARD EQUIPMENT

### 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

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**OPTIONAL EQUIPMENT**

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**Engine**

Fast fuel

Clutch engine fan

**Drivetrain**

Traction bias differential

Inline fuel heater

9000 series transmission

Transmission sump guard

**Electrical System**

Heated and adjustable electrical mirrors

Remote jump start points

Working light kit

LED headlamps

**Cab**

Cab heater (-40°C)

**Body**

Onboard Weighing System

Body Exhaust Heating

Body Extensions upon request

Body liner plates (available with full weight or half weight)

**Safety**

Volvo Smart View

Fire suppression system

Orange flashing beacon

**Service and maintenance**

Quick oil drain kit

-40°C Arctic Kit

Central (Beka) autolube

Service light kit

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**OPTIONAL EQUIPMENT**

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**Tires**

Bridgestone standard supply

VRLS

VMTS

Michelin tires

XDR2-B

XDT-A4

XKD1A

XDRA

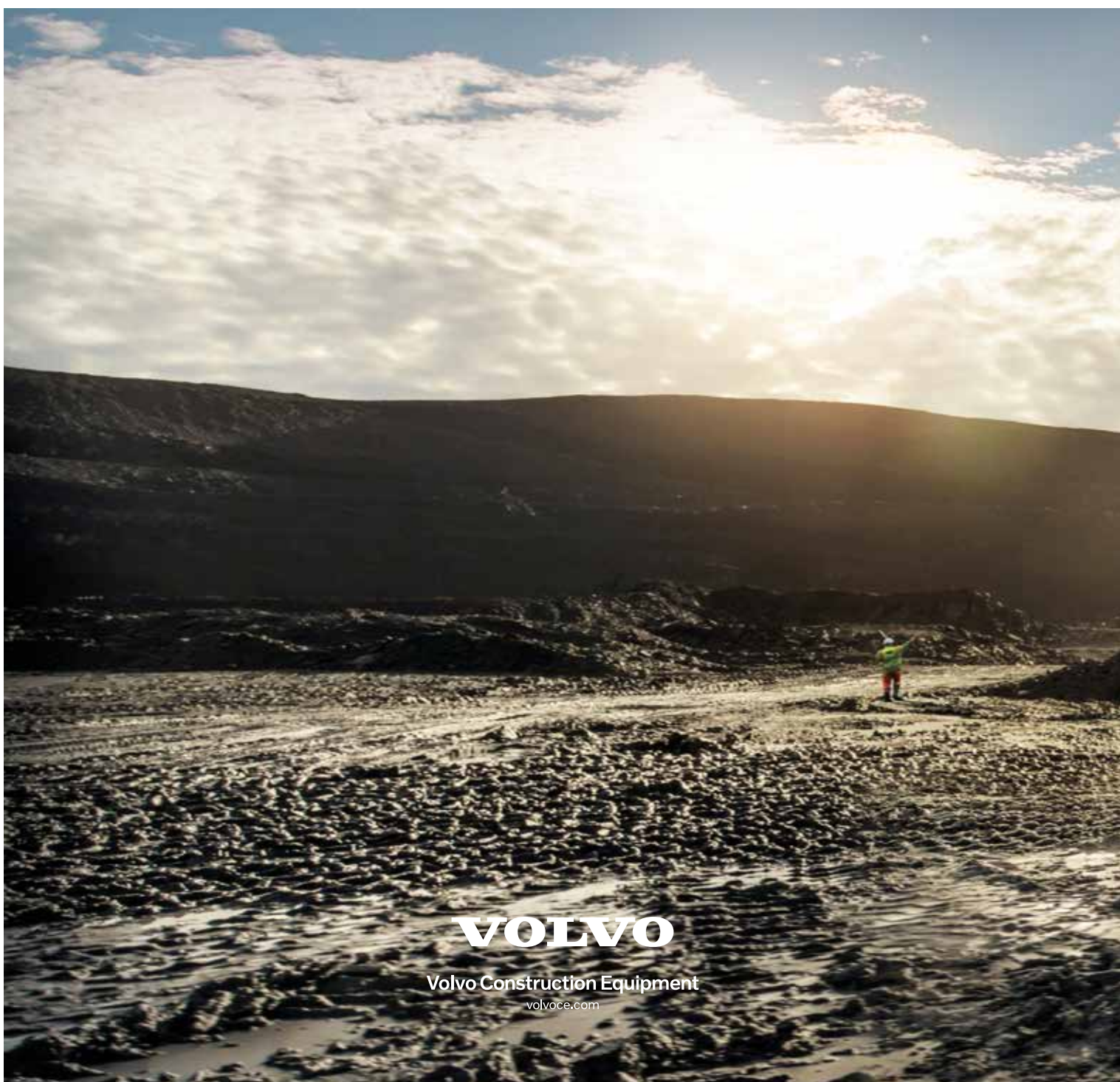
TPMS Tyre pressure monitoring system

Manual body down

High Idle

360 degree Camera system

50% front brake



**VOLVO**

Volvo Construction Equipment

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