

## SANDVIK LH514 UNDERGROUND LOADER



## SUPERIOR HYDRAULIC POWER

#### Fast bucket filling

Sandvik LH514 smart boom geometry is optimized to provide highest in class breakout forces for fast bucket filling and handling of oversized rocks. The powerful boom and bucket hydraulics combined with smart geometry enable the use of both lift and tilt functions simultaneous when penetrating the muck pile, making one-pass bucket filling easy and contributing to high fill factors.

#### Efficient load sense hydraulics

The proven load sense hydraulic system with variable displacement piston pumps provides on demand pressure and flow for greater efficiency, enabling increased tractive effort during loading and reduced fuel consumption.

## De-clutch and automatic bucket shaking

The electrohydraulic controls include an easy button operated de-clutch function for truck loading and automatic bucket shaking for shorter dumping times. Steering and boom soft stops reduce shock loads and vibration and extend cylinder lifetime.

#### Production monitoring

Sandvik Integrated Weighing System (IWS) accurately measures payload when lifting the boom as well as the number of buckets filled during a shift and records the results to My Sandvik Digital Services Knowledge Box<sup>TM</sup>. The Knowledge Box<sup>TM</sup> can transfer this production monitoring data through Wi-Fi connection for access via My Sandvik internet portal. Alternatively, data can be downloaded manually onto a USB stick. Payload monitoring can assist in maximizing productivity, identifying training needs and reducing overloading.



# ADVANCED POWERTRAIN TECHNOLOGY

#### High tramming speeds

The compact Sandvik LH514 with its high power to weight ratio provides the highest in class tramming speeds for shorter cycle times and higher productivity. The advanced powertrain technology includes a proven transmission with automatic gear shifting and optional torque converter lock up ensuring fast ramp speeds to quickly clear tunnel headings for rapid advance rates.

Durable axles use limited slip differentials to maintain traction and spring applied hydraulic release brakes (SAHR) for safe braking. Vehicle top speed can also be adjusted with gear limiting to improve safety in narrow tunnels and rough roads.

## Fuel efficient Tier 2 engine for high altitudes

A robust 256kW Tier 2 engine with catalytic purifier and muffler delivers long engine lifetime in underground mining conditions. This fuel efficient 13 litre engine is also calibrated for use in high altitude conditions to maintain performance, low emissions and reliability.

## Low MSHA and CANMET ventilation rates with Tier 4f engine

Sandvik LH514 is also available with a Tier 3 compliant engine or a low emission Tier 4 final engine. The Tier 4 final engine delivers low MSHA and CANMET ventilation rates with ultra-low Sulphur diesel fuel. The exhaust after treatment system of the Tier 4 final engine consists of a selective catalytic reduction system (SCR), which uses diesel exhaust fluid to reduce emissions of nitrogen oxides. This SCR solution delivers the most robust and reliable Tier 4 final emissions compliance without sacrificing performance and fuel efficiency. The Tier 4f engine is equipped with an engine brake.

## AUTOMINE® AND OPTIMINE® COMPATIBILITY

Sandvik LH514 has been designed for use with AutoMine®, Sandvik's robust mining automation system for increased safety, productivity and lower costs.

#### AutoMine®

Sandvik AutoMine® is the industry leader in automation for underground loaders and trucks. This high-performing, comprehensive solutions is working around the world, backed by Sandvik experts across the globe. The Optional Sandvik AutoMine® readiness allows retrofitting of the AutoMine® Onboard Package for autonomous use later during the Sandvik LH514 lifetime.

#### OptiMine®

Take optimization further with OptiMine®, the powerful suite of digital tools for real time visualization, analysis, and optimization of mining production and processes. OptiMine® integrates all relevant data into one source, delivering both real-time and predictive insights to improve operations.

#### Knowledge Box™

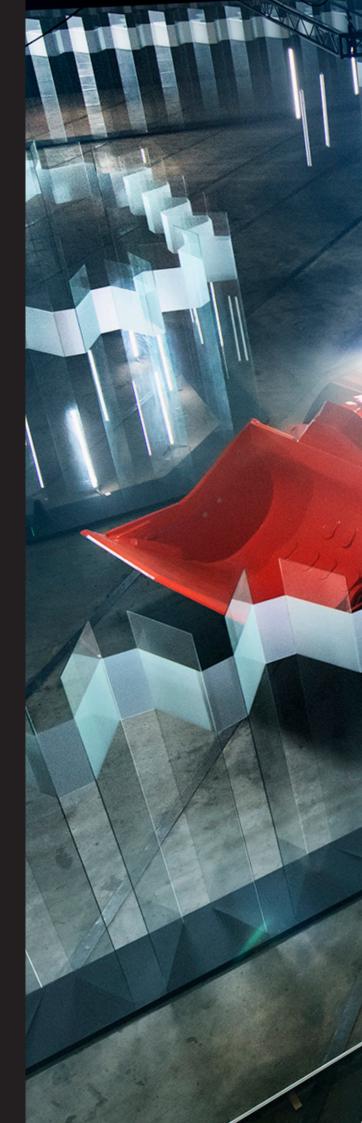
The Knowledge Box<sup>™</sup> onboard Sandvik LH514 transfers monitoring data through a Wi-Fi connection to the My Sandvik internet portal for visualization of fleet health, productivity and utilization. Transferred data can also be used by OptiMine®, an analytics and process optimization suite to improve mining process efficiency.

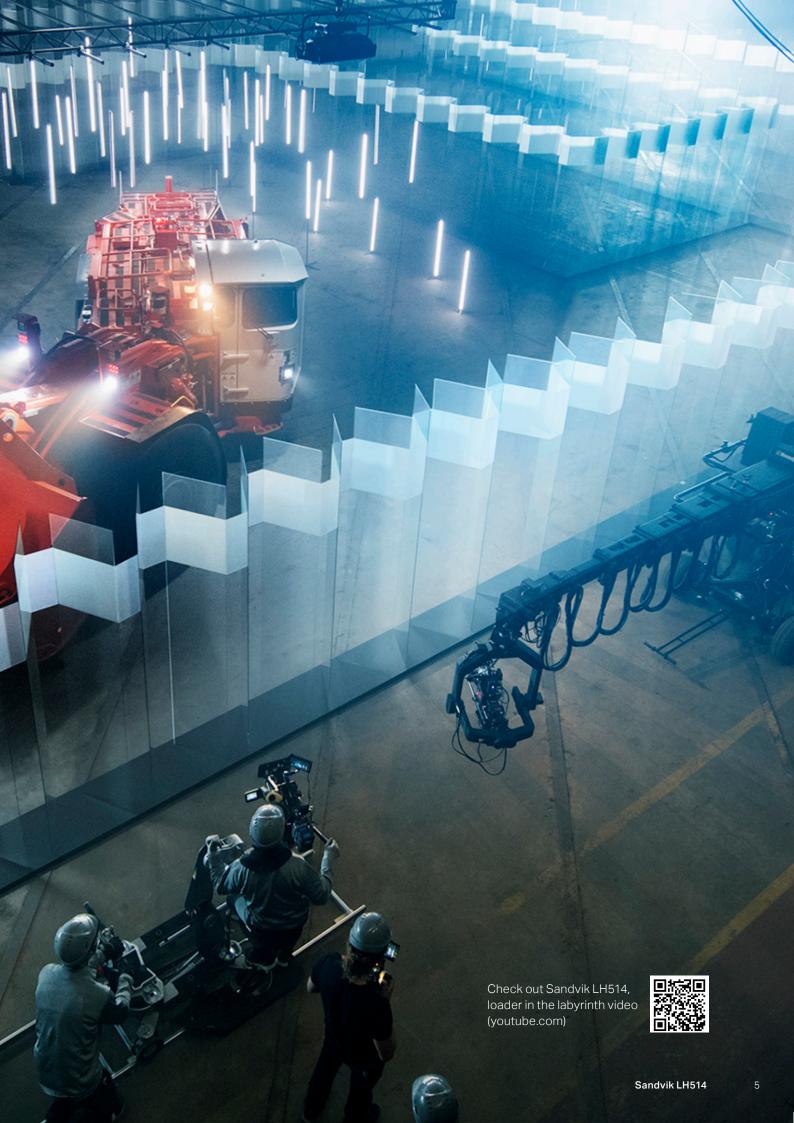
#### Line of sight radio remote control

Sandvik LH514 can be equipped with a line of sight radio remote control, available with a direct can-bus connection to the Sandvik Intelligent Control System. An additional video camera system is available for improved visibility when loading by radio remote control. A recovery kit option releases equipment brakes by pulling a hook at the rear of the loader to retrieve the equipment from under unsupported roof, in case it is required.

#### Proximity Detection System Interface

A Proximity Detection System (PDS) interface option is also available on Sandvik LH514 for mines to interface with their site PDS system. The PDS interface offers easy installation and connection to the Sandvik Intelligent Control System with the capability to slow down and stop the loader on the signal from the PDS system.





## EASE OF MAINTENANCE & SERVICEABILITY

#### AUTOMATIC CENTRAL LUBRICATION SYSTEM

The standard automatic central lubrication system optimizes grease consumption and extends the life of the bushes and bearings. Activated by Sandvik Intelligent Control System when the parking brake is released, hard to reach areas are well lubricated and service time is reduced. The boom uses hollow pins which are lighter and easier to remove, along with new bush lip seals to prevent the ingress of dirt, reducing wear.

#### SANDVIK INTELLIGENT CONTROL SYSTEM

To minimize the need to move around the machine or use special tools, the 7" touch screen color display in the operator's compartment provides service information, easy system diagnostics and alarm log files. An automatic brake test with diagnostics and logging can also be performed from the display.

SANDVIK

#### GROUND LEVEL SERVICE

Sandvik LH514 has been designed with smart placement of key service areas and safer service access. An electric filling pump for hydraulic oil quickly fills the hydraulic tank through a filter to ensure clean oil to protect the hydraulic system components. Hydraulic test points are accessible at ground level.

#### HOT SIDE - COLD SIDE

The cold side of the loader includes ground level access to engine fuel filters. An efficient Power Core engine filter is housed well within the frame for impact protection and utilizes an ejector valve system for increased filter lifetime. The fuel tank is sized to ensure continuous operation for a full working shift. An optional fast filling system for fuel and oils increases equipment availability by reducing fueling time by up to 80% as well as eliminating fuel and oil spills.

The hot side includes heat shielding for exhaust components, backed up by an optional Eclipse<sup>TM</sup> fire suppression system from Sandvik to improve fire safety.

## LOW COST OF OWNERSHIP

#### SAFETY ONBOARD

Energy isolation can be achieved with a lockable main switch. Standard onboard wheel chocks can be used to ensure the machine remains stationary. Maintenance access to the top of the machine includes three-point high contrast handles and anti-slip steps on both front and rear frames. Optionally available easy to assemble safety rails on the rear of the machine reduce risks of falling.



#### SWING-OUT RADIATOR FANS

Unique easy-to-clean engine cooler with swing-out fans allow effective cleaning from both sides of the radiator core. Designed for high ambient temperatures, the V-tube radiator features replaceable copper tubes for fast and easy repair. Corrosion resistant brass tubes are included in the harsh conditions package, available as an option.

#### STRONG RESISTANCE TO SHOCK LOADS

Welded steel box structures used in the frame and boom provide strong resistance to shock loads and are optimized to reduce stresses as well as extend frame lifetime. Computer designed frames using Finite Element Analysis (FEA) are made of high strength structural steel for superior strength to weight ratio.

### LONGER LIFETIME AND EASIER MAINTENACE WITH EXTENSIVE STEEL PIPING

Extensive use of hydraulic steel piping throughout Sandvik LH514 delivers longer lifetime and easier maintenance access than traditional hydraulic hoses.

Separate side-mounted brake, hydraulic and transmission cooling provides increased performance in hot conditions underground. A more efficient cooling circuit results is lower oil temperatures, reducing stress on the system, extending component lifetimes, and minimizing oil leaks.

## LOWER BUCKET MAINTENANCE COSTS AND REDUCED DOWN TIME

SHARK™ Ground Engaging Tools (G.E.T.) are available on a wide range of bucket sizes, optimized for loader productivity and extended bucket service life. Available as either mechanical or weld on systems, G.E.T. solutions provide lower overall bucket maintenance costs and reduced downtime.

#### MAINTENANCE KITS AND PERFORMANCE FLUIDS

Tailor-made maintenance kits include all relevant parts and other materials for planned maintenance.

Sandvik Performance Fluids preserve the machine's high performance. Smooth operation throughout its lifetime can be ensured with Sandvik Long-Life Engine, Transmission and Hydraulic Oils, which are available in different viscosity grades.

## SAFETY AND OPERATOR COMFORT



#### ROPS AND FOPS CERTIFIED CABIN OR CANOPY

Sandvik LH514 is available with a robust ROPS and FOPS certified open canopy or closed cabin, both protecting the operator in case of rolling over or falling objects.

The sealed and pressurized cabin is air-conditioned and uses dust and noise resistant upholstery materials, has 3-layer laminated safety glass windows, emergency exits, and illuminated cabin entrance with three-point contact handles and anti-slip steps. The cabin door has an improved locking mechanism increasing reliability, and a magnetic interlock ensuring disengagement of boom, bucket and steering functions when the door is opened.

## ADJUSTABLE JOYSTICK ARMRESTS AND LOW FREQUENCY SUSPENSION SEAT

This loader is fitted with an adjustable low frequency suspension seat with two-point seat belt. Padded arm rests and adjustable joysticks can be configured to suit the operator. The electro-hydraulic joystick controls for steering and boom movements eliminate hydraulic hoses inside the cabin and reduce potential hydraulic hazards.

#### RIDE CONTROL

The optional ride control system dampens the boom and bucket movement by a nitrogen accumulator, providing a smoother ride over rough ground and less spillage when carrying loads at high tramming speed.

#### 7" TOUCH SCREEN COLOR DISPLAY

The 7" color touch screen display has all the needed information and alarms on one large display giving the operator more time to keep eyes on the road. Dark background graphics with clear symbols are designed for the underground environment to reduce eye fatigue. The Sandvik Intelligent Control system monitors and warns the operator before failures occur, preventing severe damage and potential loss of production.

#### IMPROVED VISIBILITY

Sandvik LH514 is fitted with adjustable, high-power LED lights as standard. Operator visibility can be further improved with a lift kit as well as right-hand side and rear facing monitoring cameras. An additional cabin heater element for the air conditioning is available for cold climate conditions.

## SANDVIK 365 PARTS & SERVICES

#### PROUDLY KEEPING YOU ON TRACK!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik LH514 loader's performance. As an OEM, we provide the best-suited choices to preserve your machine's high performance throughout its lifetime. These consist of highly skilled service specialists supporting you 365 days a year, all using Sandvik Genuine parts and components complemented by a range of robust tools. In addition, you get to enjoy the benefits of advanced digital services and a global infrastructure dedicated to keeping your Sandvik fleet on track.

#### **BENEFIT FROM OUR 365 SOLUTIONS**

Our Sandvik 365 Parts & Service solutions will enable your equipment to function safely at peak condition and allow you to achieve the most demanding production targets. Our aftermarket portfolio attends all possible needs throughout your equipment's lifecycle, ranging from the most basic and traditional offerings to the most sophisticated ones.

### YOUR EQUIPMENT UPTIME IS OUR FOCUS - SANDVIK 365 COMPONENT SOLUTIONS

We have all your key components available to you under our various commercial offerings to suit your needs. Whether you have an ad-hoc failure or you are planning your maintenance in advance – we can assist, manage your components to maximize your uptime.

## MAXIMIZE YOUR PRODUCT LIFETIME WITH SANDVIK 365 REBUILD SOLUTIONS

One of the most effective ways to optimize equipment lifecycle lies in the quality and range of the Sandvik Rebuild Solutions. Planning and executing rebuilds at optimal intervals helps you keeping your equipment's operating cost and productivity on track. A rebuild by the manufacturer can optimize your total cost of ownership (TCO) and increase the level of predictability around our fleet lifecycle.

#### CHOOSE FROM OUR RANGE OF SERVICE AGREEMENTS

With Sandvik Service Agreements, you can improve productivity and minimize unplanned downtime by making use of our expertise, systems and processes. They can be adapted to the specific level of support you require – helping you proactively manage your fleet and avoid any unexpected surprises.

#### GAIN PRODUCTIVITY THROUGH CONNECTIVITY

365 My Sandvik Digital Service solutions will provide you with visualization of fleet utilization, productivity, safety and health on 24/7 basis. The digital service dashboards can be accessed through the My Sandvik customer portal, where you can subscribe to My Sandvik Insight or Productivity. This way, My Sandvik Digital Service Solutions enable you to minimize unplanned downtime and set exact targets for improvement.



## TECHNICAL SPECIFICATION SANDVIK LH514

Sandvik LH514 is a high capacity underground loader for hard rock applications.

Sandvik LH514 combines smart geometry with powerful thrust, high breakout forces, responsive controls and high tramming speeds. The advanced but still robust loader provides fast bucket filling, high fill factors, fast cycle times and proven reliability for underground mining use.

Sandvik LH514 is equipped with Sandvik Intelligent Control System, the backbone of the loader. The control system monitors the equipment productivity and health, and enables multiple smart solutions, such as the optionally available Integrated Weighing System and AutoMine® loading readiness for fully automated use.

SHARK™ Ground Engaging Tools (G.E.T.) are available on a wide range of bucket sizes, optimized for loader productivity and extended bucket service life.

#### CAPACITIES

Tramming capacity	14 000 kg
Break out force, lift	28 042 kg
Break out force, tilt	23 453 kg
Standard bucket	5.4 m³

## SPEEDS FORWARD & REVERSE (LEVEL/LOADED) WITH VOLVO TAD1340VE ENGINE

1st gear	5.9 km/h	
2nd gear	10.5 km/h	
3rd gear	18.3 km/h	
4th gear	32.7 km/h	

#### **BUCKET MOTION TIMES**

Raising time	7.0 sec
Lowering time	4.0 sec
Dumping time	2.3 sec

#### **OPERATING WEIGHTS**

Total operating weight	38 100 kg
Front axle	16 700 kg
Rear axle	21 400 kg

#### LOADED WEIGHTS

Total loaded weight	52 100 kg	
Front axle	38 625 kg	
Rear axle	13 475 kg	



#### OPERATIONAL CONDITIONS AND LIMITS

Environmental temperature	From -20°C to +50°C
Standard operating altitude	With engine Volvo TAD1340VE from -1500 m to +3000 m at 25 °C without rated power derate

#### REQUIREMENTS AND COMPLIANCE

Compliance with 2006/95/EC Low voltage directive

Compliance with 2004/108/EC Electromagnetic compatibility directive

Compliance with 2006/42/EC Machinery directive (Equipment for EU area, achieved with relevant options)

Design based on EN 1889-1. Machines for underground mines. Mobile machines working underground. Safety. Part 1: Rubber tyred vehicles.

Design based on MDG 15. Guideline for mobile and transportable equipment for use in mines. (Equipment for Australia, achieved with relevant options)

Electrical system based on IEC 60204-1. Safety of machinery – Electrical equipment of machines – Part 1: General requirements

CONTAINS FLUORINATED GREENHOUSE GASES (closed cabin option)

Refrigerant R134a under pressure max 38 bar/550 PSI:

Filled weight: 2,000 kg

CO2e: 2,860 tons

GWP: 1430

Information based on the F Gas Regulation (EU) No 517/2016

#### **POWER TRAIN**

Power shift transmission with

modulation.

#### **ENGINE**

Diesel engine	Volvo TAD1340VE
Output	256 kW @ 2100 rpm
Torque	1 770 Nm @ 1260 rpm
Engine brake	No
Number of cylinders	In-line 6
Displacement	12.78
Cooling system	Liquid cooled and piston pump driven cooler fan
Combustion principle	4-stroke, direct injection, turbo with intercooler
Air filtration	Two stage filtrarion, dry type
Electric system	24 V
Emissions	Tier 2, Euro Stage II
Ventilation rate	CANMET 9.96 m³/s, MSHA 15500 CFM
Particulate index	MSHA 10500 CFM
Exhaust system	Catalytic purifier and muffler, double wall exhaust pipe
Average fuel consumption at 40% load	33.0 l/h
Fuel tank refill capacity	5401
CONVERTER	
Dana C9602	No lock-up
TRANSMISSION	

Dana 6422, automatic gear

and reverse.

shift control, four gears forward

#### **AXLES**

Front axle, spring applied hydraulic operated brakes. Fixed.	Kessler D106, limited slip differential.
Rear axle, spring applied hydraulic operated brakes. Oscillating ± 8°.	Kessler D106, limited slip differential.

#### **TIRES**

Tire size (Tires are application approved. Brand and type subject to availability.)	26.5x25 L5S 36 ply
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#### **HYDRAULICS**

Elec	ctric f	illing i	pump '	for	hyd	Iraul	ic oi		
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Door interlock for brakes and boom, bucket, and steering hydraulics

Oil cooler for hydraulic and transmission oil capability up to  $50^{\circ}\text{C}$  ambient temperature

**ORFS** fittings

MSHA approved hoses

Hydraulic oil tank capacity 240 I

Sight glass for oil level, 2 pcs

#### STEERING HYDRAULICS

Full hydraulic, centre-point articulation, power steering with two double acting cylinders. Steering lock.	Steering controlled by electric joystick.
Steering main valve	Open circuit type
Steering hydraulic cylinders	125 mm, 2 pcs
Steering pump	Piston type, LS controlled
Steering and servo hydraulic pumps	Piston type

#### **BUCKET HYDRAULICS**

The oil flow from steering hydraulic pump is directed to bucket hydraulics when steering is not used.	Joystick bucket and boom control (electric), equipped with piston pump that delivers oil to the bucket hydraulic main valve.
Boom system	Z-link
Lift cylinders	160 mm, 2 pcs
Dump cylinder	200 mm, 1 pc
Main valve	Open circuit type
Pump for bucket hydraulics	Piston type, LS controlled

#### BRAKES

Service brakes are spring applied; hydraulically operated multidisc wet brakes on all wheels. Two independent circuits: one for the front and one for the rear axle. Service brakes also function as an emergency and parking brake. Brake system performance complies with requirements of EN ISO 3450, AS2958.1 and SABS 1589.

Neutral brake
Automatic brake activation system, ABA
Electrically driven emergency brake release pump
Brake oil tank capacity 75 l

#### **OPERATOR'S COMPARTMENT**

Sandvik LH514 is available with a robust ROPS and FOPS certified cabin or canopy, both protectecting the operator in case of roll over or falling objects.

The optional sealed and pressured cabin is air-conditioned and uses dust and noise resistant upholstery materials, has 3-layer laminated safety glass windows, emergency exits, illuminated cabin entrance with three-point contact handles and anti-slip steps.

CABIN (Cabin option replaces the standard canopy)

ROPS certification according to EN ISO 3471

FOPS certification according to EN ISO 3449

Sealed, air conditioned, over pressurized, noise suppressed closed cabin

Sound absorbent material to reduce noise

Laminated glass windows

Cabin mounted on rubber mounts to the frame to reduce vibrations

Air conditioning unit located outside the cabin to reduce noise inside the cabin

Cyclone pre-filter for A/C device

Adjustable joysticks

No high pressure hoses in the operator's compartment

Inclinometers to indicate operating angle

Emergency exit

Floor washable with water to reduce dust

Three-point contact access system with replaceable and colour coded handles and steps

12 V output

Remote circuit breaker switch

#### **CANOPY** (Standard)

ROPS certification according to EN ISO 3471

FOPS certification according to EN ISO 3449

Adjustable joysticks

No high pressure hoses in the operator's compartment

Inclinometers to indicate operating angle

Emergency exit

Floor washable with water to reduce dust

Three-point contact access system with replaceable and colour coded handles and steps

12 V output

Remote circuit breaker switch

#### CONTROL SYSTEM, DASHBOARD AND DISPLAYS

A 7" colour display with advanced touch screen functionality has all the needed information and alarms on one large display giving the operator more time to keep eyes on the road. Dark background graphics with clear symbols are designed for the underground mining environment to reduce eye fatigue. The Sandvik Intelligent Control system monitors and warns the operator before failures occur, preventing severe damage and potential loss of production.

Sandvik Intelligent Control System

Critical warnings and alarms displayed as text and with light

7" color display with touch screen function and adjustable contrast and brightness, illuminated switches

My Sandvik Digital Services Knowledge Box™ on-board hardware



#### **OPERATOR'S SEAT**

Low frequency suspension	
Height adjustment	
Adjustment according to the c	perator's weight
Padded and adjustable arm res	sts
Two-point seat belt	
Fore-aft isolation	With cabin option only
Adjustable lumbar support	With cabin option only
Selectable damping	With cabin option only

#### MEASURED VIBRATION LEVEL

Whole body vibration was determined while operating the loader in a simulated working cycle consisting of loading, unloading and driving with and without load. The value is determined applying standards EN 1032 and ISO 2631-1.

Maximum r.m.s.value a<sub>w</sub> [m/s²] 0,95 VDV<sub>w</sub> over 15 min period [m/s <sup>1.75</sup>] 8,26

#### MEASURED SOUND LEVEL

The sound pressure level and sound power level at the operator's compartment, in a closed cabin, have been determined in stationary conditions on high idle and at full load, with engine Volvo TAD1340VE Tier 2.

Sound pressure level $L_{pA}$ [dB re 20 $\mu$ Pa]	74 dB
Sound power level L <sub>WA</sub> [dB re 1 p W]	122 dB

#### FRAME

#### REAR AND FRONT FRAME

High strength structure with optimized material thicknesses. Reduced own weight for higher overall hauling capacity and long structural lifetime. Welded steel construction.

Adjustable upper bearing in central hinge

Rear tanks bolted to frame, hydraulic tank and cabin base both bolted and welded to frame

Automatic central lubrication

#### **ELECTRICAL EQUIPMENT**

#### MAIN COMPONENTS

Alternator	24 V, 150 A
Batteries	2 x 12 V, 180 Ah
Starter	9 kW, 24 V
Driving lights	LED lights: 2 pcs in front 4 pcs in rear 4 pcs in cabin
Working lights	LED lights, 1 pc under boom
Parking, brake and indicator (blinkers) lights	LED lights: 2 pcs in front 2 pcs in rear
Control syste mwith 7" Color di diagnostics	isplay, 5 modules, inbuilt system
Reverse alarm (CE)	

#### **INCLUDED SAFETY FEATURES**

#### FIRE SAFETY

Flashing beacon

Portable fire extinguisher, 12 kg (CE)
Hot side - cold side design
Isolation of combustibles and ignition sources
Heat insulation on exhaust manifold, turbo, and isolated exhaust pipe

#### **ENERGY ISOLATION**

Lockable main switch, ground level access
Emergency stop push buttons according to EN ISO 13850: 1 pc in cabin, 2 pcs in rear of the loader
Pressure release in the expansion tank cap
Automatic discharge for pressure accumulators (brake system and pilot circuit)
Frame articulation locking device
Mechanical boom locking device
Wheel chocks and brackets

#### **DOCUMENTATION**

#### STANDARD MANUALS

Operator's Manual	English and other EU languages
Maintenance Manual	English and other EU languages
Parts Manual	English
Service and Repair Manual	English, Russian, French
ToolMan	2 x USB stick in pdf format, includes all the manuals
Decals	English, Finnish, Swedish, Spanish, Russian, French, Polish, Portuguese, Turkish, German, Norwegian, Estonian, Chinese, Greek

#### GRADE PERFORMANCE

Volvo TAD1340VE (standard engine)									
Empty									
Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0
Ratio					1:12	1:10	1:8	1:7	
1st gear (km/h)	5.9	5.9	5.8	5.8	5.8	5.8	5.7	5.7	5.7
2nd gear (km(h)	10.5	10.4	10.4	10.3	10.2	10.2	10.1	9.5	8.5
3rd gear (km/h)	18.4	18.2	18.0	17.8	15.8	13.7	11.9		
4th gear (km/h)	32.9	32.3	26.7	21.5					
Loaded									
Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0
Ratio					1:12	1:10	1:8	1:7	
1st gear (km/h)	5.9	5.9	5.8	5.8	5.8	5.7	5.7	5.7	5.6
2nd gear (km(h)	10.5	10.4	10.3	10.2	10.1	9.5	8.2	7.5	6.7
3rd gear (km/h)	18.3	18.0	17.7	14.7	12.4				
4th gear (km/h)	32.7	28.8							

#### **OPTIONS**

Closed cabin
Cabin lift kit (150 mm)
Disabled 4th gear (mandatory in EU)
Line of sight radio remote control (HBC CAN)
Line of sight radio remote control (HBC CAN) with video camera system
Radio remote control interface HBC (analoque, not with automation)
Recovery kit (brake release by pulling the hook)
Driving direction lights (red / green)
Fire suppression system ANSUL, 2 tanks, 8 nozzles (CE) including auto engine shutdown (not for automation)
Fire suppression system ANSUL, 2 tanks, 8 nozzles (CE), Checkfire including auto engine shutdown
Eclipse™ fire suppression system with auto shut down, Sustain or Extreme agent delivered separately
Extra fire extinguisher 12kg
Safety rails
Emergency steering (CE)
AutoMine® Onboard package
AutoMine® Loading readiness
Jump start interface
Monitoring camera system
Proximity Detection System (PDS) Interface
Additional cabin heater element for air conditioning
Cover grills for lamps
Converter with lock-up, Dana SOH
Spare rim 22.00-25/3.0 (for tires 26.5-25)
Ride control
Wiggins quick filling set for fuel and oils (hydraulic, engine and transmission)
Integrated weighing system (IWS)
Electirc loader towing kit
CE Declaration of conformity (CE)
Accordance with KA requirements for Chinese market
Arctic package 120 V / 230 V

#### OPTIONAL ENGINE

Diesel engine	Volvo TAD1171VE
Output	265 kW @ 2 100 rpm
Engine brake	Yes
Converter lock-up	Yes
Emissions	Tier 4 Final
Ventilation rate (Ultra low sulphur fuel, AdBlue)	CANMET 5.90 m <sup>3</sup> /s, MSHA 12 000 CFM
Particulate index (Ultra low sulphur fuel, AdBlue)	MSHA 1 500 CFM
Average fuel consumption at 40% load	29 l/h

#### OPTIONAL ENGINE

Diesel engine	Volvo TAD1171VE
Output	265 kW @ 2 100 rpm
Engine brake	Yes
Converter lock-up	Yes
Emissions (Ultra low sulphur fuel, AdBlue)	Euro Stage IV
Average fuel consumption at 40% load	29 l/h

#### OPTIONAL ENGINE

Diesel engine	Volvo TAD1350VE
Output	256 kW @ 1 900 rpm
Engine brake	No
Emissions (Ultra low sulphur fuel, AdBlue)	Euro Stage III
Average fuel consumption at 40% load	29 l/h

#### AVAILABLE BUCKETS

TYPE	VOLUME	WIDTH	MAX. MATERIAL DENSITY
BareLip	6.2 m <sup>3</sup>	2700 mm	2400 kg/m³
BareLip	7.0 m <sup>3</sup>	3000 mm	2000 kg/m³
G.E.T. (standard)	5.4 m³	2770 mm	2600 kg/m³
G.E.T.	6.2 m <sup>3</sup>	2770 mm	2200 kg/m³
G.E.T.	7.0 m <sup>3</sup>	3070 mm	1900 kg/m³
G.E.T. Half Arrow	7.0 m <sup>3</sup>	3060 mm	1900 kg/m³

#### DIMENSIONS

