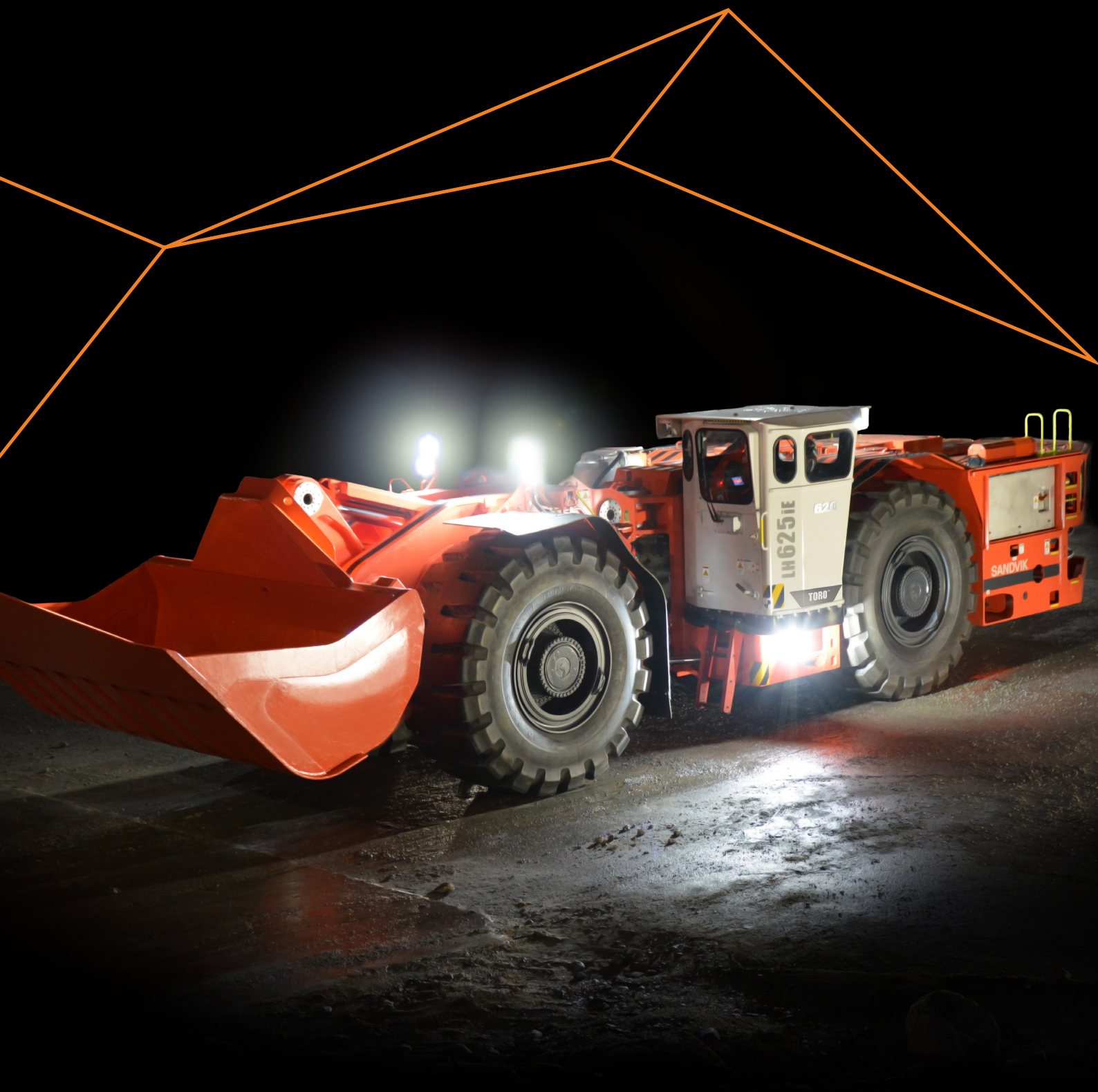




TORO™ LH625iE ELECTRIC LOADER





SUPERIOR PRODUCTIVITY

Well-proven giant with 25 000 kg payload capacity

The world's largest capacity underground loader, the electric Toro™ LH625iE, offers an enormous carry capacity of 25 tonnes with its 10 m³ bucket. The giant is built on Sandvik proven cable electric loader design, but naturally, today's Toro™ LH625iE comes with advanced i-series technology, latest digital solutions and smart connectivity.

Zero underground diesel emissions

Toro™ LH625iE is one living proof that it is possible to achieve impressive productivity without using traditional diesel engines and fossil fuel. With no underground exhaust emissions, less heat and lower noise levels, electric motors contribute to better working conditions underground, and help to reduce mine ventilation costs.

Fast bucket filling

As in all Sandvik loaders, this giant smart boom geometry is optimized to provide superior hydraulic power for fast bucket filling and handling of oversized rocks. The powerful boom and bucket hydraulics combined with the smart geometry enable use of both lift and tilt functions simultaneous when penetrating into the muck pile. Further, 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.

LOW COST PER TONNE

Electric motor with IE4 energy classification

The Toro™ LH625iE loader's extremely high payload capacity combined with its energy efficient, IE4 classified electric motor ensure low cost per loaded tonne. Further, compared to diesel engines, the electric motor requires less service during its lifetime; for example no engine oil or filter changes, no extensive engine rebuilds.

The totally new, low-tension reeling system increases the trailing cable lifetime.

Efficient cooling

For efficient operation at higher ambient temperatures, the loader features increased brake, hydraulic and transmission cooling capacity. An efficient cooling circuit leads to lower oil temperatures, reducing stress on the system, extending component lifetimes and minimizing oil leaks.

Heavy duty axles

The robust Toro™ LH625iE loader is equipped with heavy-duty axles to ensure long axle life in demanding conditions. Increased rear axle oscillation provides greater movement over rough terrain with a re-enforced steel structure to reduce stress. The number of brake discs in the spring applied hydraulic release (SAHR) brakes has been optimized for smoother braking along with a simpler brake hydraulic circuit requiring less maintenance and adjustment.

Heat, water and corrosion resistance

All electrical hardware is specially designed for demanding mine conditions with corrosion, heat and water resistance. Increased wiring protection including new shrink mesh electric motor wiring harnesses increase reliability.



FIRST CLASS OPERATOR ENVIRONMENT

Space underground

Comfortable working conditions contribute to utilizing the loader's full capacity. The giant loader cabin offers incomparable space and roomy layout for the operator. Controlled temperature environment through air conditioning, low noise levels, dust and noise resistant upholstery materials, and a number of adjustment possibilities provide the operator with comfort for long working shifts.

The cabin includes a 230 V power outlet that can be used for an external electric heater or other electric devices, and a 12 / 24 V power socket for mobile devices.

Smooth ride

The Toro™ LH625iE loader's electric motor produces low vibration, supporting operator ergonomics and the cabin is mounted on rubber mounts to the rear frame.

For operator safety

The cabin is ROPS and FOPS certified to protect the

operator in case of roll over or falling objects. Safety glass windows, illuminated cabin entrance with three-point contact handles and anti-slip steps and emergency exits further increase safety. The door system features a magnetic interlock switch, which automatically applies brakes and disables boom and bucket movements when the door is opened.

Reduced operator fatigue

A 7" color 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, and black upholstery materials reduce window reflections. Cabin interior lighting on/off switch is located in the cabin ceiling.

Unique seat

The loader's spacious cabin features one-of-a-kind seating arrangement with 180 degrees turning seat,



operated on the steering joystick. The turning seat improves visibility and ergonomics especially when the driving distances are longer. To improve safety, the boom and bucket movements are disabled when the operator drives rear first and the seat is turned 120 degrees or more. Naturally, the seat features adjustable low frequency suspension, two-point seat belt, padded arm rests and adjustable joysticks.

To improve visibility, the seat can be lifted with extra 50 mm by a push button on the dashboard. Further, to help to match the operator needs, also the pedal stand is adjustable with electric functionality by pushing a button, allowing the pedal stand to be lifted up by up to 120 mm.

Improved visibility with camera systems

A monitoring camera system with two screens is available as an option for the Toro™ LH625iE loader: while driving bucket first, the operator can easily monitor the screen providing the rear view, and when reversing, the other display can be used to monitor the front frame and bucket.



READY FOR DIGITALIZATION

OptiMine®

OptiMine® is the most comprehensive solution for optimizing underground hard rock mining production and processes. It integrates all assets and people - including Sandvik and non-Sandvik equipment - delivering descriptive and predictive insights to improve operations.

OptiMine® is interoperable and able to connect to any system and technology, including Newtrax IoT devices, providing a real-time view of mining operations. It is an open and scalable modular suite that gives you flexibility to expand and work with a full range of equipment, systems and networks.

Production monitoring

To ensure maximum utilization of the rated payload on every trip, the loader can be equipped with Sandvik's Integrated Weighing System (IWS) for loaders, which accurately measures the payload when lifting the boom – as well as the number of buckets filled during a shift – and records the result to the My Sandvik Digital Services Knowledge Box™. The Knowledge Box™ can transfer the data through Wi-Fi connection for customer access via My Sandvik internet portal. Alternatively, data can be downloaded manually in the operator's compartment onto a USB stick.

My Sandvik Digital Service Solutions

365 My Sandvik Digital Service Solutions are designed to help you maximize your productivity, operational efficiency and safety. The Knowledge Box™ onboard the loader collects, processes and transfers monitoring data into My Sandvik Insight and My Sandvik Productivity dashboards which you can access 24/7 via My Sandvik customer portal for visualization of fleet health, productivity and utilization.





MAINTENANCE FRIENDLY

SMART MAINTENANCE

To minimize the need to move around the machine or use special tools, the 7" color display in the cabin provides service information, easy system diagnostics and an alarm log files. The Sandvik Intelligent Control System monitors and warns the operator before failures occur, preventing severe damage and potential loss of production. The control system user interface is available in 17 different languages.

The automatic central lubrication system, which is a standard feature in the Toro™ LH625iE loader, 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.

FOR SAFER SERVICE

To help getting to the top of the unit, the loader accesses systems include 3-point high contrast handles and anti-slip steps on both front and rear frames. Energy isolation can be done with a lockable main switch, and emergency stop push buttons are available within easy reach. Jacking points on the front and rear frame reduce risks during jacking, while built in tie down and lifting points in the frame and bucket enable safe transportation.

The boom lock in the front frame allows securing the loader boom and bucket to up position for maintenance. The boom uses robust solid floating pins with a M30 pull out thread for easier pin removal, along with new bush lip sealings to prevent the ingress of dirt.



SANDVIK 365 PARTS & SERVICES

PROUDLY KEEPING YOU ON TRACK!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your 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

TORO™ LH625iE

Toro™ LH625iE is an electric loader with a 25 tonne payload capacity. Equipped with an energy efficient, IE4 classified electric motor, the giant loader offers low cost per loaded tonne. With no exhaust emissions, less heat and lower noise levels, the electric motor contributes to better working conditions underground, and helps to reduce mine ventilation costs.

The cabin offers incomparable space and roomy layout for the operator, including one-of-a-kind seating arrangement with 180 degrees turning seat, operated on the steering joystick. A 7" color 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.

In the area of digitalization and intelligence, the Toro™ LH625iE loader features smart solutions such as Sandvik Intelligent Control System and My Sandvik Digital Services Knowledge Box™ on-board hardware as standard. For production monitoring, the loader can be equipped with Sandvik's Integrated Weighing System (IWS) as well as OptiMine® solution.

CAPACITIES

Maximum tramming capacity	25 000 kg
Break out force, lift	55 000 kg
Break out force, tilt	53 000 kg
Standard bucket	10 m ³

SPEEDS FORWARD & REVERSE (LEVEL/LOADED)

1st gear	3.6 km/h
2nd gear	6.3 km/h
3rd gear	10.5 km/h
4th gear	16.2 km/h

BUCKET MOTION TIMES

Raising time	9.0 sec
Lowering time	6.2 sec
Dumping time	2.5 sec

OPERATING WEIGHTS

Total operating weight	77 500 kg
Front axle	36 650 kg
Rear axle	39 950 kg

LOADED WEIGHTS

Total loaded weight	101 600 kg
Front axle	74 900 kg
Rear axle	26 700 kg



OPERATIONAL CONDITIONS AND LIMITS

Environmental temperature	From -20°C to +50°C
Standard operating altitude	With standard unit from -1500 m to +2000 m at 25 °C

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 Refrigerant R134a under pressure max 38 bar/550 PSI: Filled weight: 2,0 kg CO2e: 2,860 tons GWP: 1430 Information based on the F Gas Regulation (EU) No 517/2016

POWER TRAIN

ELECTRIC MOTOR

Three phase squirrel-cage drive motor	Siemens
Drive motor output	315 kW, IE4
Drive motor voltage	1 000 V
Drive motor frequency	50 Hz
Drive motor speed	1 500 rpm
Drive motor insulation class	B
Drive motor degree of protection	IP 55
Three phase squirrel-cage pump motor	Siemens
Pump motor output	2 x 75 kW
Pump motor voltage	1 000 V
Pump motor frequency	50 Hz
Pump motor speed	1 500 rpm
Pump motor insulation class	B
Pump motor degree of protection	IP 55
Three phase squirrel-cage fan motor	3 pcs
Fan motor output	2,2 kW
Fan motor voltage	400 V
Fan motor frequency	50 Hz
Fan motor speed	3 000 rpm
Fan motor insulation class	F
Total electric power	471,6 kW

CONVERTER

DANA 9000 series

TRANSMISSION

Power shift transmission with modulation	Dana 8000 series, four gears forward and reverse
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AXLES

Front axle, spring applied hydraulic operated brakes. Fixed.	Kessler D116, limited slip differentials
Rear axle, spring applied hydraulic operated brakes. Oscillating $\pm 8^\circ$.	Kessler D116, limited slip differentials

TIRES

Tire size (Tires are application approved. Brand and type subject to availability.)	40/65-39 L5, 56 ply
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HYDRAULICS

Door interlock for brakes, boom bucket, and steering hydraulics
Filling pump for hydraulic oil with quick coupling for filling
Oil cooler for hydraulic and transmission oil with capability up to 50°C ambient temperature
ORFS fittings
MSHA approved hoses
Hydraulic oil tank capacity 595 l
Sight glass for oil level, 2 pcs

STEERING 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
Steering main valve	Closed center type, LS controlled
Steering hydraulic cylinders	160 mm, 2 pc
Steering pump	-
Steering and servo hydraulic pumps	Piston type, LS controlled

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	250 mm, 2 pcs
Dump cylinder	320 mm, 1 pc
Main valve	Closed center, LS valve
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.

Automatic brake application, ABA
Electrically driven emergency brake release pump
Brake oil tank capacity 100l

OPERATOR'S COMPARTMENT

CABIN

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 cabin
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

OPERATOR'S SEAT

180 degrees turning operator seat
Low frequency suspension
Height adjustment
Adjustment according to the operator's weight
Fore-aft isolation
Padded and adjustable arm rests
Adjustable lumbar support
Selectable damping
Two-point seat belt

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_w [m/s ²]	0,68
VDV _w over 15 min period [m/s ^{1.75}]	6,79

MEASURED SOUND LEVEL

The sound pressure level and sound power level at the operator's compartment have been determined in stationary conditions on high idle and at full load.

Sound pressure level L_{pA} [dB re 20 μ Pa]	74 dB
Sound power level L_{WA} [dB re 1 p W]	109 dB



CONTROL SYSTEM, DASHBOARD AND DISPLAYS

Sandvik Intelligent Control system
Critical warnings and alarms displayed as text and with light
7" color display with touch screen functionality and adjustable contrast and brightness
Instrument panel with illuminated switches
My Sandvik Digital Services Knowledge Box™ on-board hardware

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.

Central hinge with adjustable upper bearing

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

Automatic central lubrication

ELECTRICAL EQUIPMENT

MAIN COMPONENTS

Batteries 2 x12V, 75Ah	
Cable reeling electronically controlled, closed hydraulic circuit	
Cable anchoring unit	
Cable shock absorber	
Driving lights	LED lights: 4 pcs in front 4 pcs in rear 7 pcs in cabin area
Working lights	LED light, 1 pc under boom
Parking, brake and indicator (blinkers) lights	LED lights: 2 pcs in front 2 pcs in rear
Control system	7" color display, 6 modules, inbuilt system diagnostic
Reverse alarm (CE)	
Flashing beacon	

ILLUMINATION

Illuminance Eav with 5 pieces of LED lights at a distance of 20 m in front of the loader:

Head lights, high beam E _{av}	127 lx
Head lights, low beam E _{av}	15 lx

Illuminance Eav with 5 pieces of LED lights at a distance of 20 m behind the loader:

Reversing lights, high beam E _{av}	205 lx
Reversing lights, low beam E _{av}	31 lx

Toro™ LH625iE is compliant with the South African Mine health and safety act 29 of 1996, as the average light intensity in the direction of travel is more than 10 lux at a distance of 20 m.

INCLUDED SAFETY FEATURES

FIRE SAFETY

Portable fire extinguisher, 12 kg (CE)

ENERGY ISOLATION

Lockable main switch, ground level access

Emergency stop push buttons according to EN ISO 13850: 1 pcs in the cabin, 2 pcs in the rear

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
ToolMan	2 x USB stick in pdf format, includes all manuals
Decals	English, Swedish

OPTIONS

CE Declaration of conformity

Driving direction lights (red / green)

Emergency steering (CE)

Integrated weighing system (IWS) for loaders

Monitoring camera system

Neutral brake

Round cable, NEXANS RHEYCORD, 4x95 mm², 350 m

Spare rim 32.00-39/4.0

VICTOR plugs for supply cable

GRADE PERFORMANCE

AC 315 kW / 1500 rpm

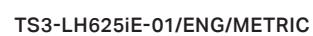
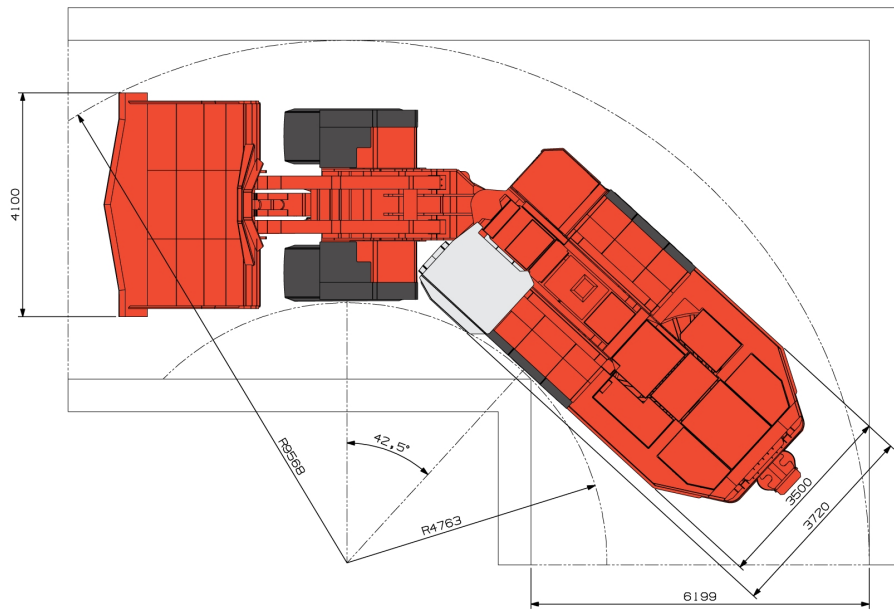
Empty

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
Ratio					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	3.6	3.5	3.5	3.5	3.4	3.4	3.3	3.3	3.2	3.1
2nd gear (km/h)	6.3	6.2	6.0	6.0	5.8	5.5	5.2	4.9	4.3	3.8
3rd gear (km/h)	10.9	10.5	9.8	9.0	7.8	6.6	4.8			
4th gear (km/h)	18.9	16.2	12.3							

Loaded

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
Ratio					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	3.6	3.5	3.5	3.4	3.4	3.3	3.2	3.1	2.9	2.8
2nd gear (km/h)	6.3	6.2	6.0	5.7	5.3	4.9	4.2	3.8	3.0	
3rd gear (km/h)	10.7	10.0	8.8	7.2	5.5					
4th gear (km/h)	17.7	13.0								

The dimensions are indicative only



ELECTRIC LOADERS

LH514E AND LH409E

For more than 35 years, Sandvik has been delivering electric loaders, connected with trailing cable to the mine network. In addition to the giant Toro™ LH625iE, the LH514E and LH409E loaders offer an alternative for diesel-powered equipment for underground hard rock loading and hauling applications.

Benefits of Sandvik electric loaders include zero underground diesel emissions and zero consumption of diesel fuel. Compared to diesel-powered equipment, traditional electric loaders emit less noise, vibration and heat during operation, contributing to improved operator comfort and underground working conditions.

LH514E

Maximum tramming capacity	14 000 kg
Dimensions L-W-H	11 m x 3 m x 2.6 m
Operating weight	38 500 kg
Break out force, lift	28 100 kg
Break out force, tilt	24 600 kg
Bucket range	4.6 m ³ - 7.0 m ³

LH409E

Maximum tramming capacity	9 600 kg
Dimensions L-W-H	10.3 m x 2.5 m x 2.3 m
Operating weight	24 500 kg
Break out force, lift	20 400 kg
Break out force, tilt	19 300 kg
Bucket range	3.8 m ³ - 4.6 m ³



