



SANDVIK LH409E ELECTRIC LOADER

TECHNICAL SPECIFICATION

Sandvik LH409E is an electrically-driven loader for underground hard rock loading and hauling applications, with a tramming capacity of 9.6 metric tonnes. Reliability, fast bucket filling and rapid cycle times provide high capacity at low cost per tonne. The Sandvik LH409E fits in an envelope of 3.5 m x 3.5 m.

The Sandvik LH409E offers a possibility to select a loader equipped with an electric motor emitting zero diesel emissions, and significantly less noise, vibrations and heat than diesel equipment.

High breakout forces, high tramming speeds and unique bucket filling enable you to move more material faster. The compact profile and short turning radius make navigation easy. Horizontal cable reeling enables operating with the connection point on either side of the unit.

Advantages

- Zero diesel emissions from the electric motor improves working environment
- Efficient LED lights reduce eye fatigue and risk of collision, while long LED lifetime offers lower cost of ownership compared to halogen lights
- Easy, ground-level access for service and maintenance optimizes uptime
- High power-to-weight ratio ensures faster cycle times



CAPACITIES

Tramming capacity	9 600 kg
Break out force, lift	20 400 kg
Break out force, tilt	19 300 kg
Tipping load	24 800 kg
Standard bucket	3.8 m ³

SPEEDS FORWARD & REVERSE (LEVEL/LOADED)

1st gear	3.5 km/h
2nd gear	6.3 km/h
3rd gear	11.8 km/h

BUCKET MOTION TIMES

Raising time	8.0 sec
Lowering time	4.5 sec
Dumping time	3.0 sec

OPERATING WEIGHTS

Total operating weight	24 500 kg
Front axle	9 800 kg
Rear axle	14 700 kg

LOADED WEIGHTS

Total loaded weight	34 100 kg
Front axle	24 100 kg
Rear axle	10 000 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

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

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

POWER TRAIN

ELECTRIC MOTOR

Three phase squirrel-cage drive motor	VEM
Drive motor output	1 10 kW
Drive motor voltage	660 V
Drive motor frequency	50 Hz
Drive motor speed	1 500 rpm
Drive motor insulation class	F
Drive motor degree of protection	IP 55
Three phase squirrel-cage fan motor	VEM, 2 pcs
Fan motor output	0.75 kW
Fan motor voltage	400 V
Fan motor frequency	50 Hz
Fan motors insulation class	F
Total electric power	1 12 kW

TRANSMISSION

Power shift transmission with modulation	Dana HR36425, electrical gear shift control, three gears forwards and reverse
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AXLES

Front axle, spring applied hydraulic operated brakes. Fixed.	Kessler D102, limited slip differential
Rear axle, spring applied hydraulic operated brakes. Oscillating $\pm 8^\circ$.	Kessler D102, limited slip differential

TIRES

Tire size (Tires are application approved. Brand and type subject to availability.)	18.00x25 L5S 28 ply
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OPERATOR'S COMPARTMENT

CANOPY

No high pressure hoses in the operator's compartment

Inclinometers to indicate operating angle

Emergency exit

Floor washable with water to reduce dust

OPERATOR'S SEAT

Low frequency suspension

Height adjustment

Adjustment according to the operator's weight

Padded and adjustable arm rests

Two-point seat belt

DASHBOARD AND DISPLAYS

Critical warnings and alarms Audible and visible alarms

Instrument Panel Electric gauges

Instrument Panel Illuminated switches

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 Adjustable upper bearing

Tanks Hydraulic tank bolted and welded to frame. Rear tank and cabin base welded to frame

Automatic central lubrication Standard

HYDRAULICS

Filling pump for hydraulic oil	Electrical (Option)
Door interlock for brakes and boom, bucket, and steering hydraulics	Standard
Oil cooler for hydraulic and transmission oil	Capability up to 52°C ambient temperature
Fittings	JIG
Hoses	MSHA approved
Hydraulic oil tank capacity	420 l
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 hydraulic joystick.
Steering main valve	Open center type, hydraulically controlled
Steering hydraulic cylinders	125 mm, 2 pcs
Steering pump	Gear type
Steering and servo hydraulic pumps	Gear type

BUCKET HYDRAULICS

The oil flow from steering hydraulic pump is directed to bucket hydraulics when steering is not used.	Hydraulic joystick bucket and boom control, equipped with gear pump that delivers oil to the bucket hydraulic main valve.
Boom system	Z-link
Lift cylinders	160 mm, 2 pcs
Dump cylinder	160 mm, 2 pcs
Main valve	Open center type
Pump for bucket hydraulics	Gear type

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	Option
Electrically driven emergency brake release pump	Standard

ELECTRICAL EQUIPMENT

MAIN COMPONENTS

Batteries	2 x 12 V, 56 Ah, Gelled-electrolyte type
Cable reeling	Hydraulically controlled
Cable anchoring unit	Standard
Cable shock absorber	Standard
Driving lights	LED lights: 4 pcs in front 4 pcs in rear
Working lights	LED lights: 1 pc under boom 1 pc corner light
Parking, brake and indicator (blinkers) lights	LED lights: 2 pcs in front 2 pcs in rear
Reverse alarm (CEN)	Standard
Flashing beacon	Standard

INCLUDED SAFETY FEATURES

FIRE SAFETY

Portable fire extinguisher	12 kg (CEN)
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ENERGY ISOLATION

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

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
ToolMan	2 x CD and 2 x USB stick in pdf format, includes all the manuals
Decals	English, Swedish, Russian

OPTIONS

SAFETY OPTIONS

Radio remote control HBC, analogue
Radio remote control interface HBC, analogue, not with automation
Fire suppression system ANSUL, 1 tank, 6 nozzles, including auto shutdown

ELECTRICAL OPTIONS

Electric motor 1000 V/50 Hz
Electric motor 550 V/50 Hz
Supply box
Round cable, NEXANS RHEYCORD(RTS), 4x35 mm ² , 330 m (1000 V)
Round cable, NEXANS RHEYCORD(RTS), 4x35 mm ² , 210 m (1000 V)
Round cable, NEXANS RHEYCORD(RTS), 4x50 mm ² , 240 m (550/575/600 V)
Round cable, NEXANS RHEYCORD(RTS), 4x50 mm ² , 280 m (660 V)
Round cable, NEXANS RHEYCORD(RTS), 4x50 mm ² , 300 m (550 V)
Round cable, PRYSMIAN CORDAFLEX, 4x50 mm ² , 240 m (660 V)
330m KA certified trailing cable (330m 4x35) for China
210m KA certified trailing cable (210m 4x35) for China
VICTOR plug for supply box

OTHER OPTIONS

Cover grills for lamps
Disabled 3rd and 4th gear
Spare rim 13.00-25/2.5 (for tires 18.00-25)
Towing kit with aggregate for steering and brake release

GRADE PERFORMANCE

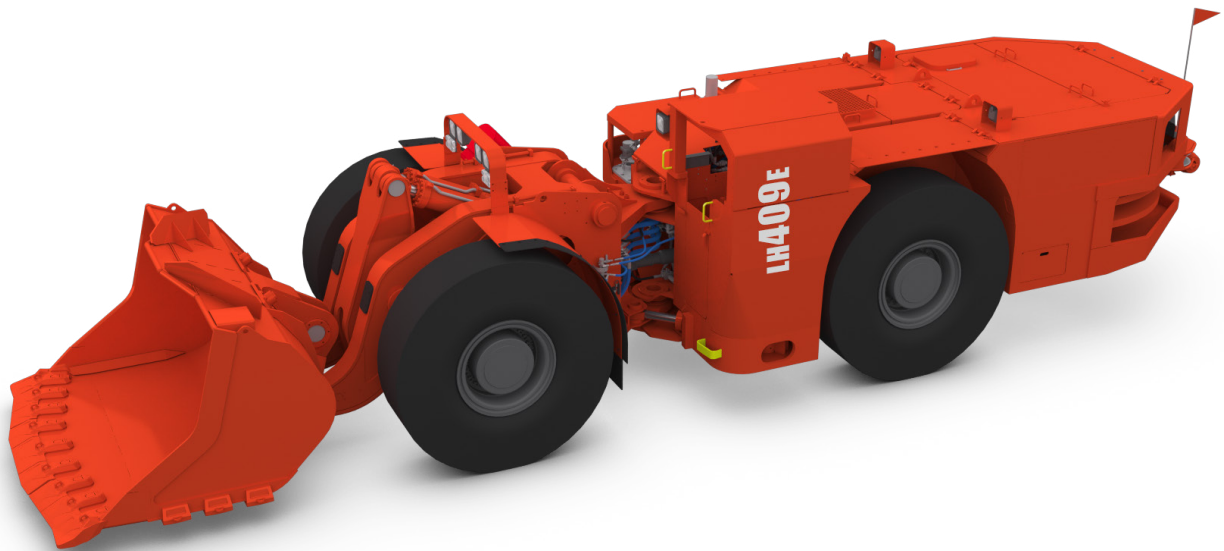
VEM 110 kW

Empty

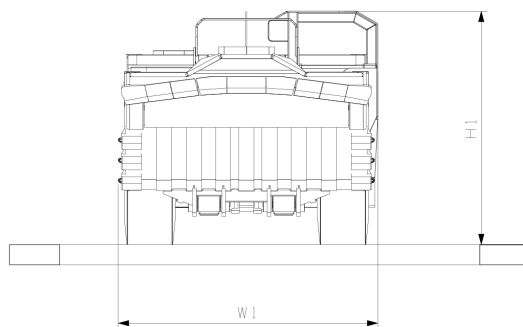
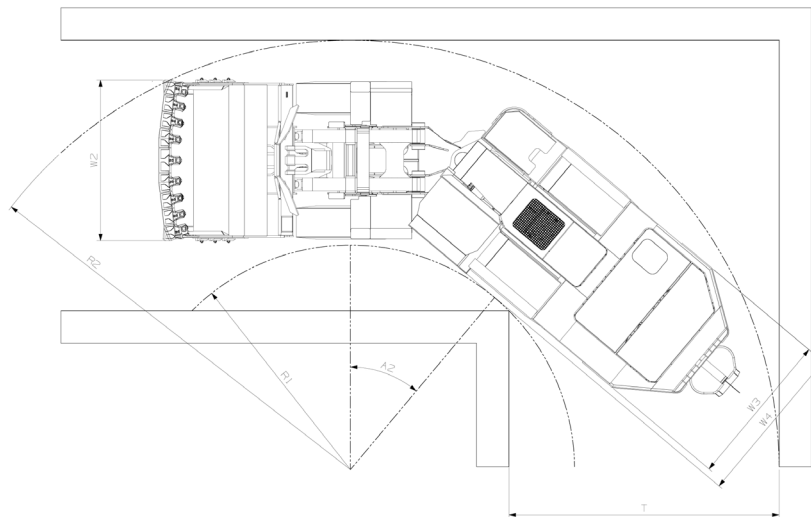
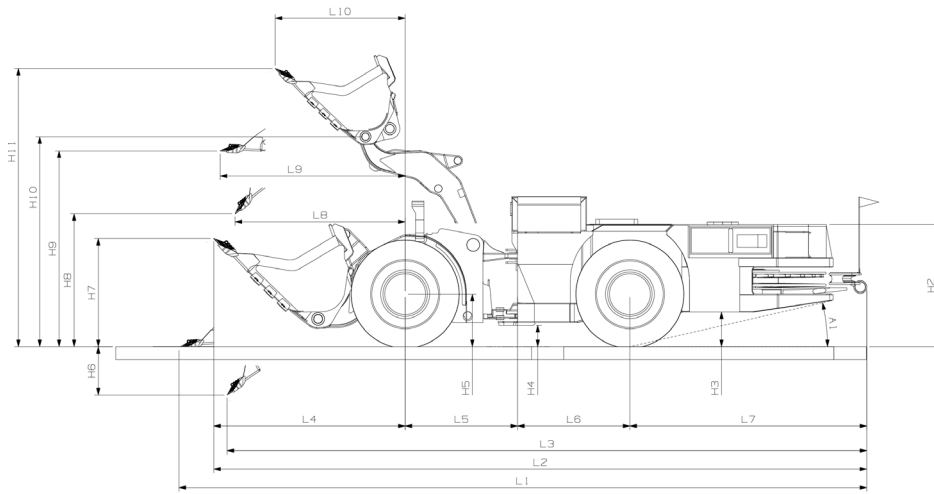
Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0
Ratio					1:12	1:10	1:8	1:7	
1st gear (km/h)	3.5	3.5	3.4	3.4	3.4	3.3	3.3	3.3	3.2
2nd gear (km/h)	6.4	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.3
3rd gear (km/h)	12.0	11.6	11.2	10.8	10.1	9.3	8.1	6.5	

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)	3.5	3.4	3.4	3.3	3.3	3.3	3.2	3.2	3.1
2nd gear (km/h)	6.3	6.2	6.0	5.9	5.7	5.5	5.2	5.9	4.4
3rd gear (km/h)	11.8	11.3	10.7	9.6	8.4				



DIMENSIONS

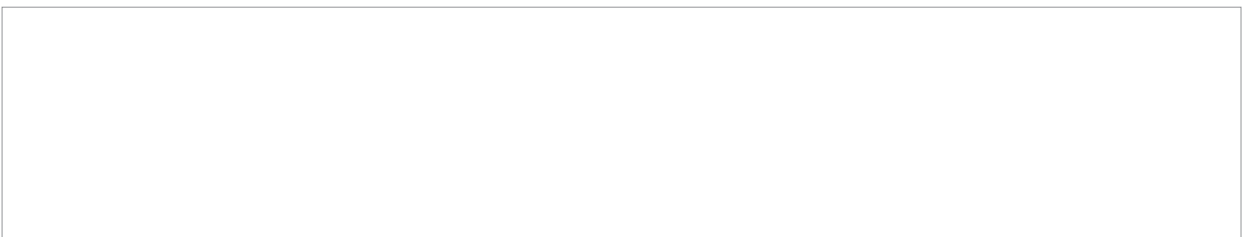


DIMENSIONS

	Standard		
Bucket alternatives (m ³)	3.8 m ³	4.6 m ³	4.6 m ³
Material broken density (kg/m ³)	max. 2600 kg/m ³	max. 2000 kg/m ³	max. 2000 kg/m ³
Lip plate type	GET	GET	Half Arrow
L1 (mm)	10458	10796	10796
L2 (mm)	10087	10330	10330
L3 (mm)	9956	10226	10229
L4 (mm)	2959	3203	3203
L5 (mm)	1735	1735	1735
L6 (mm)	1735	1735	1735
L7 (mm)	3658	3658	3658
L8 (mm)	2247	2502	2502
L9 (mm)	2903	3243	3243
L10 (mm)	2507	2752	2752
H1 (mm)	2319	2319	2319
H2 (mm)	1884	1884	1884
H3 (mm)	534	534	534
H4 (mm)	329	329	329
H5 (mm)	810	810	810
H6 (mm)	970	1168	1173
H7 (mm)	1668	1905	1909
H8 (mm)	1880	1651	1655
H9 (mm)	3151	3151	3151
H10 (mm)	3389	3389	3389
H11 (mm)	4615	4853	4850
W1 (mm)	2544	2578	2600
W2 (mm)	2478	2478	2590
W3 (mm)	2400	2400	2400
W4 (mm)	2505	2505	2505
A1	13°	13°	13°
A2	40°	40°	40°
R1, left turn (mm)	3462	3462	3462
R2, left turn (mm)	6658	6718	6817
T, left turn (mm)	4211	4270	4369
R1, right turn (mm)	3567	3567	3567
R2, right turn (mm)	6620	6718	6817
T, right turn (mm)	4098	4195	4369

DIMENSIONS

Bucket alternatives (m ³)	3.8 m ³	4.3 m ³	4.6 m ³
Material broken density (kg/m ³)	max. 2600 kg/m ³	max. 2200 kg/m ³	max. 2100 kg/m ³
Lip plate type	Bare Lip	Bare Lip	Bare Lip
L1 (mm)	10491	10696	10800
L2 (mm)	10060	10203	10276
L3 (mm)	10018	10186	10272
L4 (mm)	2932	3076	3149
L5 (mm)	1735	1735	1735
L6 (mm)	1735	1735	1735
L7 (mm)	3658	3658	3658
L8 (mm)	2247	2464	2551
L9 (mm)	2903	3135	3239
L10 (mm)	2507	2625	2699
H1 (mm)	2319	2319	2319
H2 (mm)	1884	1884	1884
H3 (mm)	534	534	534
H4 (mm)	329	329	329
H5 (mm)	810	810	810
H6 (mm)	933	1051	1111
H7 (mm)	1740	1880	1955
H8 (mm)	1907	1776	1709
H9 (mm)	3151	3222	3225
H10 (mm)	3389	3389	3389
H11 (mm)	4615	4826	4901
W1 (mm)	2525	2525	2525
W2 (mm)	2440	2440	2440
W3 (mm)	2400	2400	2400
W4 (mm)	2505	2505	2505
A1	13°	13°	13°
A2	40°	40°	40°
R1, left turn (mm)	3462	3462	3462
R2, left turn (mm)	6559	6646	6692
T, left turn (mm)	4111	4198	4197
R1, right turn (mm)	3567	3567	3567
R2, right turn (mm)	6559	6604	6645
T, right turn (mm)	4037	4082	4123



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