



SANDVIK LH409E ELECTRIC LOADER

TECHNICAL SPECIFICATION



The 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 LH409E fits in an envelope of 3.5 m x 3.5 m.

The 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

Maximum tramming capacity	9 600 kg
Break out force, lift	20 400 kg
Break out force, tilt	19 300 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	110 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	112 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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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

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

Automatic central lubrication

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

Instrument panel with electric gauges and illuminated switches

HYDRAULICS

Door interlock for brakes and boom, bucket, and steering hydraulics

Oil cooler for hydraulic and transmission oil capability up to 52°C ambient temperature

JIG fittings

MSHA approved hoses

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.

Open center type, hydraulically controlled steering main valve

Steering hydraulic cylinders: 125 mm, 2 pcs

Gear type steering pump

Gear type steering and servo hydraulic pumps

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.

Electrically driven emergency brake release pump

INCLUDED SAFETY FEATURES

FIRE SAFETY

Portable fire extinguisher, 12 kg

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

Automatic discharge for pressure accumulators (brake system and pilot circuit)

Frame articulation locking device

Mechanical boom locking device

Wheel chocks and brackets

ELECTRICAL EQUIPMENT

MAIN COMPONENTS

Batteries	2 x 12 V, 56 Ah, Gelled-electrolyte type
Cable reeling	Hydraulically controlled
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	
Flashing beacon	
Cable anchoring unit	
Cable shock absorber	

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				

DOCUMENTATION

STANDARD MANUALS

Operator's Manual	English, Russian
Maintenance Manual	English, Russian
Parts Manual	English
Service and Repair Manual	English, Russian
ToolMan	2 x USB stick in pdf format, includes all the manuals
Decals	English, Swedish, Russian

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

Electric motor 1000 V/50 Hz

Electric motor 550 V/50 Hz

Supply box

Round cable, NEXANS RHEYCORD(RTS), 4x35 mm², 330 m (1000 V)

Round cable, NEXANS RHEYCORD(RTS), 4x35 mm², 210 m (1000 V)

Round cable, NEXANS RHEYCORD(RTS), 4x50 mm², 240 m (550/575/600 V)

Round cable, NEXANS RHEYCORD(RTS), 4x50 mm², 280 m (660 V)

Round cable, NEXANS RHEYCORD(RTS), 4x50 mm², 300 m (550 V)

Round cable, PRYSMIAN CORDAFLEX, 4x50 mm², 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

Cover grills for lamps

Disabled 3rd and 4th gear

Spare rim 13.00-25/2.5 (for tires 18.00-25)

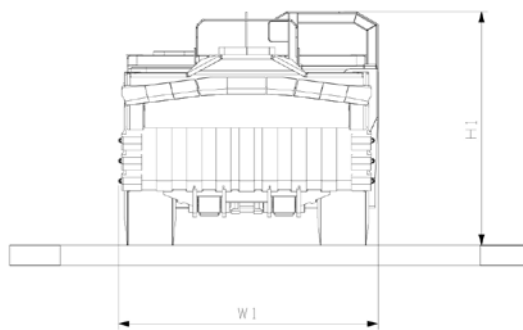
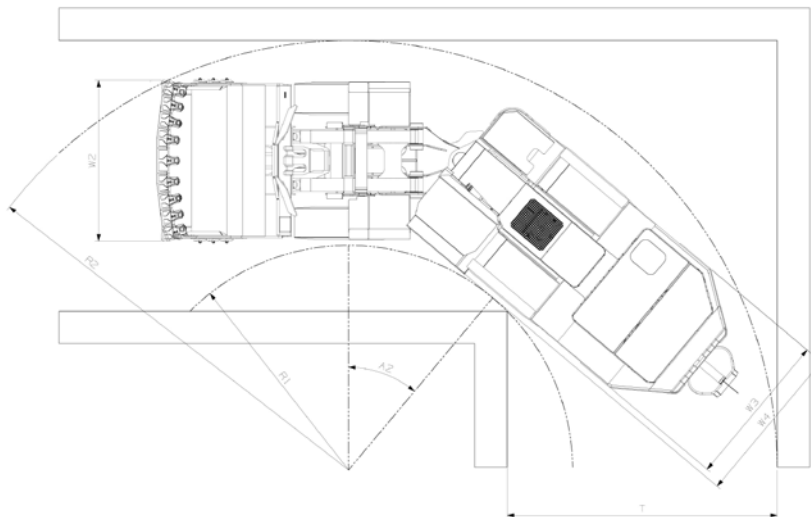
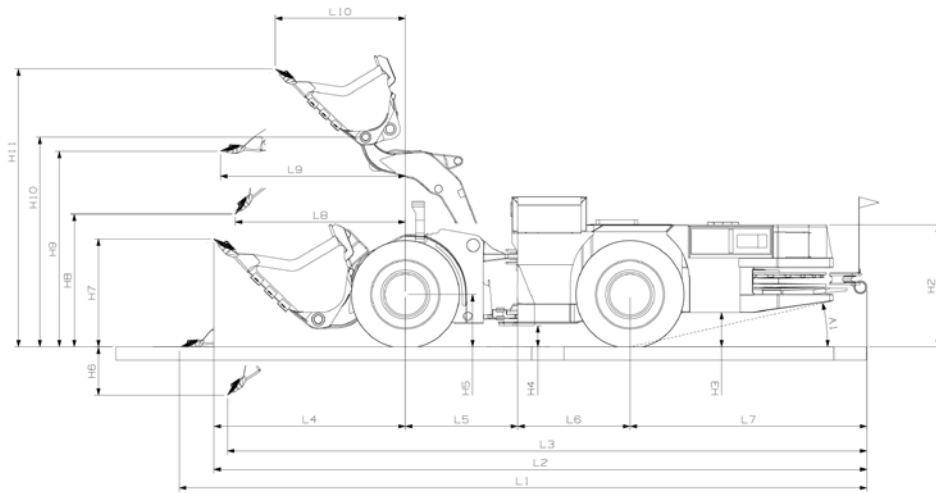
Towing kit with aggregate for steering and brake release

Neutral brake

Electrical filling pump for hydraulic oil

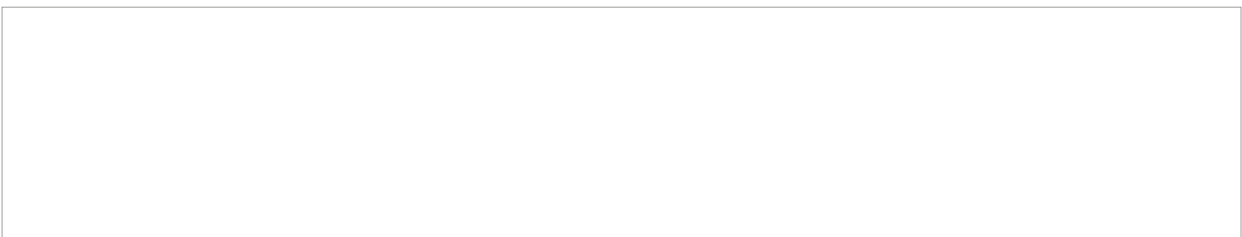
Accordance with KA requirements

DIMENSIONS



DIMENSIONS

	Standard					
Bucket alternatives (m ³)	3.8 m ³	4.6 m ³	4.6 m ³	3.8 m ³	4.3 m ³	4.6 m ³
Max. material broken density (kg/m ³)	2600 kg/m ³	2000 kg/m ³	2000 kg/m ³	2600 kg/m ³	2200 kg/m ³	2100 kg/m ³
Lip plate type	GET	GET	Half Arrow	Bare Lip	Bare Lip	Bare Lip
L1 (mm)	10458	10796	10796	10491	10696	10800
L2 (mm)	10087	10330	10330	10060	10203	10276
L3 (mm)	9956	10226	10229	10018	10186	10272
L4 (mm)	2959	3203	3203	2932	3076	3149
L5 (mm)	1735	1735	1735	1735	1735	1735
L6 (mm)	1735	1735	1735	1735	1735	1735
L7 (mm)	3658	3658	3658	3658	3658	3658
L8 (mm)	2247	2502	2502	2247	2464	2551
L9 (mm)	2903	3243	3243	2903	3135	3239
L10 (mm)	2507	2752	2752	2507	2625	2699
H1 (mm)	2319	2319	2319	2319	2319	2319
H2 (mm)	1884	1884	1884	1884	1884	1884
H3 (mm)	534	534	534	534	534	534
H4 (mm)	329	329	329	329	329	329
H5 (mm)	810	810	810	810	810	810
H6 (mm)	970	1168	1173	933	1051	1111
H7 (mm)	1668	1905	1909	1740	1880	1955
H8 (mm)	1880	1651	1655	1907	1776	1709
H9 (mm)	3151	3151	3151	3151	3222	3225
H10 (mm)	3389	3389	3389	3389	3389	3389
H11 (mm)	4615	4853	4850	4615	4826	4901
W1 (mm)	2544	2578	2600	2525	2525	2525
W2 (mm)	2478	2478	2590	2440	2440	2440
W3 (mm)	2400	2400	2400	2400	2400	2400
W4 (mm)	2505	2505	2505	2505	2505	2505
A1	13°	13°	13°	13°	13°	13°
A2	40°	40°	40°	40°	40°	40°
R1, left turn (mm)	3462	3462	3462	3462	3462	3462
R2, left turn (mm)	6658	6718	6817	6559	6646	6692
T, left turn (mm)	4211	4270	4369	4111	4198	4197
R1, right turn (mm)	3567	3567	3567	3567	3567	3567
R2, right turn (mm)	6620	6718	6817	6559	6604	6645
T, right turn (mm)	4098	4195	4369	4037	4082	4123



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