



DS221L LP CABLE BOLTER

TECHNICAL SPECIFICATION

Sandvik DS221L is a rock reinforcement drill rig specialized into mechanized and cement grouted cable-bolts installation.

The machine is designed for a nominal gallery height of 2 m (+/- 0.2 m) in underground mines and tunnels.

The Sandvik DS221L is able to install cable anchors up to 6 meters length. The drill rig is provided with an on board cement mixer, cement bags platform and cable magazine of 6 cable bolts. The drill rod handling system has a capacity of 8 rods. Hole drilled can be Ø38 mm or Ø48 mm depending on the cable shell. The machine has an ability to drill one hole fully automated (rod adding and removing).

The bolting operation is performed by a single operator located outside of the dangerous area. Once the area underneath the cable is safe thanks to the cable pre tensioning, the operator can attach the hose for post-grouting by hand.

As all the Sandvik drill rigs based on the LP carrier family, the Sandvik DS221L is designed for safety.

For example, most of the daily and routine checks can be done from the ground.

KEY FEATURES

Coverage area	6 090 x 2 790 (11 m²)
Hydraulic rock drill	1 x RD314 (14 kW)
Cable bolting head	1 x SCBH-LP
Boom	1 x B26LPCB
Control system	THC561, hydraulic
Hole length	Up to 8 500 mm
Hole diameter	Ø38 mm, Ø48 mm
Total weight	17 000 kg depending on options



1. SANDVIK DS221L - LP CABLE BOLTER

HYDRAULIC ROCK DRILL

Type of rock drill	RD314 (TS2-137)
Percussion power	14 kW
Percussion pressure	Max. 160 bar
Rotation pressure	Max. 175 bar
Percussion rate	110 Hz
Rotation speed	Max. 530 rpm (with OMS100)
Rotation torque	505 Nm (with OMS125)
Hole size diameter (drifting)	38 - 51 mm
Recommended rod	R32
Shank adapter	R23 / R32 (female) or R32 (male)
Weight	115 kg
Inflating device for accumulator	Specification TS2-430

WRENCH RHR50

Type of wrench	RHR54 (TS2-250)
Rotation speed	0 - 500 rpm (OMS160)
Rotation torque	450 Nm (OMS160)
Weight	40 kg

CABLE BOLTING HEAD

Type of bolting head	SCBH-LP (TS2-332)
Rod handling system	8 + 1 rods
Cable operation magazine capacity	6 equipped cables (3 m as standard or easily adaptable up to 6 meters length)
Stinger (retractable / extended)	1 650 / 2 650 mm
First rod (min. / max.)	1 150 / 1 220 mm
Additional rods (min. / max.)	675 / 915 mm
Total length	1 800 mm / 2 180 mm

BOOM

Type of boom	B26LPCB (TS2-323)
Parallel coverage	6 090 x 2 790 mm (11 m²)
Boom extension	1 200 mm
Boom weight, net	1 900 kg
Roll-over angle	± 120° (240°)

GROUTING AND CABLING SYSTEM

Type of cement mixer	PFT G4 next generation Water/cement ratio automatically controlled
Cement mixer pump capacity	Max. 8 l/min
Cement mixer capacity	145 liters
Equipped mechanized cable with nuts	Installation + pretensioning fully mechanized. Manually post-grouting connection. post-grouting with pump.
Cement bags platform	5 x 20 kg

HYDRAULIC SYSTEM

Powerpack	HPP555 (1 x 55 kW)
Filtration (pressure / return)	20 µ / 10 µ
Oil tank volume	160 liters (drilling)
Tank filling	Manual pump
Oil cooler (water actuated)	1 x OW30 (1 x 30 kW)
Hydraulic low level indicator	Stop drilling when the oil level in drilling tank is low
Safety shut down	Low water pressure, low air pressure, low oil level
Oil drilling safety temperature	Above 75°C

DRILLING CONTROL SYSTEM

Type of control system	THC561 (TS2-362)
Operating principle	Hydraulic control
Radio remote boom control	Fully proportional Vertical parallelism
Radio remote drilling control	Proportional feed manual control Feed deviation pressure
Automatic cycle	One hole automation
Adjustable parameters	Feed force, rotation speed Feed/percussion ratio
Other functions from operator controls	Rattling, flushing selection, fast feed
Drilling supervision	Antijamming system
Onboard diagnostics	Warning display / SICA platform
Drilling and boom movement inhibition	2 x switches and 1 x door interlock

INSTRUMENTATION

Hole depth and bolt monitoring	SICA screen and remote control
Automine	Readiness

ELECTRIC SYSTEM

Standard voltage	525 V (± 10%), 50 Hz
Total installed power	75.5 kW (70 kW + 5.5 kW for the cement TBC mixer)
Main switch gear	MSE-1JH
IP classification	Specification TS2-132
Starting method	Star delta starter (380 - 575 V)
Automatic cable reel	TCR LP11 with spooling system
Cable reel control	Operator station and rear of unit
Cable reel end switch	Automatic brake application before end of cable
Cement unit platform control	Operator station and rear of unit
Battery switch	1 x double pole lockable switch
Working lights	2 x 43 W LED (24 V)
Driving lights	6 x 43 W LED (24 V)
Rear working light (cement mixer area)	2 x 9 W LED + search light
Amber flashing light	LED (24 V)
Operator station light	Standard
Sealed AGM batteries	2 x 12 V, 95 Ah

AIR AND WATER SYSTEM

Flushing of holes	By water
Water booster pump	WBP1 (50Hz 4kW, 60Hz 5.5kW)
Water pump capacity	30 l/min at (11 bar / x bar inlet)
Water pump inlet pressure	2 – 7 bar (while drilling)
Flushing water pressure	Max. 20 bar
Shank lubrication device	SLU-1 (air / oil mist)
Air compressor	CTN16 (1.6 m³/min at 7 bar)
Rock drill oil consumption	100 - 200 g/h
Rock drill air consumption	150 - 250 l/min

OPERATOR'S SAFETY CANOPY

Canopy certification	FOPS / ROPS (ISO 3449) with mechanical stopper
Unit height in tramming	High position : 1 950 mm Low position : 1 775 mm
Operation	Seated operations
Operator's seat	Ergonomic T-back seat
Sound pressure level EN 16228	Operator station: 98 dB(A)

CARRIER

Type of carrier	TCLP II (frame-steered)
Carrier articulation	± 43°
Rear axle oscillation	± 15°
Ground clearance	300 mm
Diesel engine	Deutz BF4M2012 (74 kW, Tier 2)
Diesel engine control	Electronic, EMR
Exhaust catalyzer	Standard
Transmission	Hydrostatic, automotive
Wheel motor	4 x radial piston MSE18 high torque
Tires	315/85 x 15
Service brakes	Hydrostatic and positive braking
Parking and emergency brake	SAHR fail safe type wet disc brakes
Neutral braking	Brakes applied when neutral position activated
Tramming speed	8.6 km/h (Horizontal) 4.3 km/h (14%=1:7=8°)
Gradeability / sideways tilt	Max. 15° / 15° (according to EN 16228-2)
Fuel tank	60 liters
Tramming oil tank	50 liters
Carrier stabilization	Vertical (front and rear)
Brake release	Manual pump
Tramming alarm	Standard
Wheel chocks and holder	2 pieces
Document box	A3 format
Access point	Yellow reflective (stair and handle)
MySandvik insight	Remote monitoring system
Colour scheme	Sandvik standard

Documentation	2 x Operator's and maintenance manual 2 x Parts manual (in English only) 2 x USB key of manuals (PDF files) 1 x Online Parts manuals (MySandvik)
---------------	---

OPTIONAL ITEMS

Grouting and cabling system

Removal grouting system

Hydraulic system

*Oil tank filling pump	Electric
Additional tramming HP filter	10 micron

Electric system

Electric cabinet	Protection door
*Starting method	Soft starter 380 - 575 V only
Electric cables	Specification TS2-121
Ground fault and overcurrent protection	VYK
Indicator light for jacks up	Sensors in the jacks
Dewatering pump outlet	Max.11 kW (380 - 575 V)

Air and water system

Air mine connection	With IP5 air cleaner
Compressed air outlet	Hose and reel for accessories

Cleaning system

HP system with reel	Up to 180 bar (TS2-343)
---------------------	-------------------------

Greasing systems

Centralized greasing points	Carrier (TS2-463)
Manual system	Greasing gun and cartridge with hose reel (TS2-463)

Fire suppression system

Hand held fire extinguisher	2 x 6 kg Type ABC
Automatic system	Ansul, 6 nozzles (TS2-460)
Auto. fire suppression system	Sandvik Eclipse™ (TS2-461)

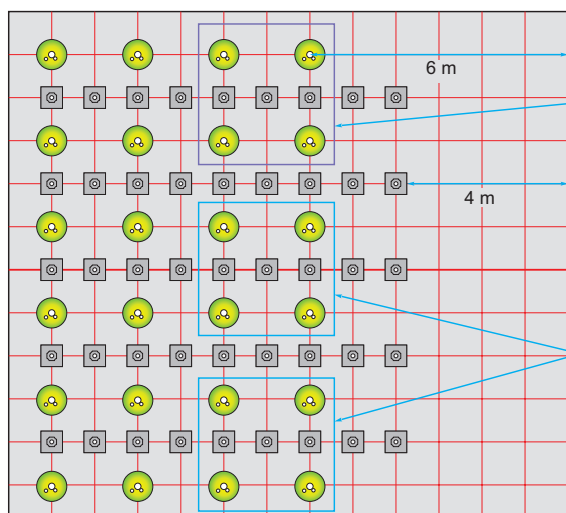
Carrier

Engine filter	Diesel particulate filters (DPF)
*Foam filled tires	4 pcs
ABA brakes	Auto brake application on default
*Lockable filler cap	Fuel and oil tanks
*MySandvik productivity	Remote monitoring system (FDM)
Proximity interface (PDS system)	CANbus Level 9 (TS2-381)

Extra items

Berg plug / Berg base	
Spare rock drill	RD314
Tools and pressure test box	Specification TS2-429
Spare wheel assembly	Air or foam filled tire
Special tools for rock drill	Field tool set (TS2-119)
	Complete tool set (TS2-118)
Special tools for rotary drill	Field tool set
Documentation	Extra paper, PDF manuals
Warranty extension	One year (excl. Kazakhstan)
Package: Country specific	SAS (Specification TS2-155)
Package: Extra safety	Specification TS2-275
Package: *Harsh water	Basic or advanced (TS2-049)

**)Replaces standard feature*

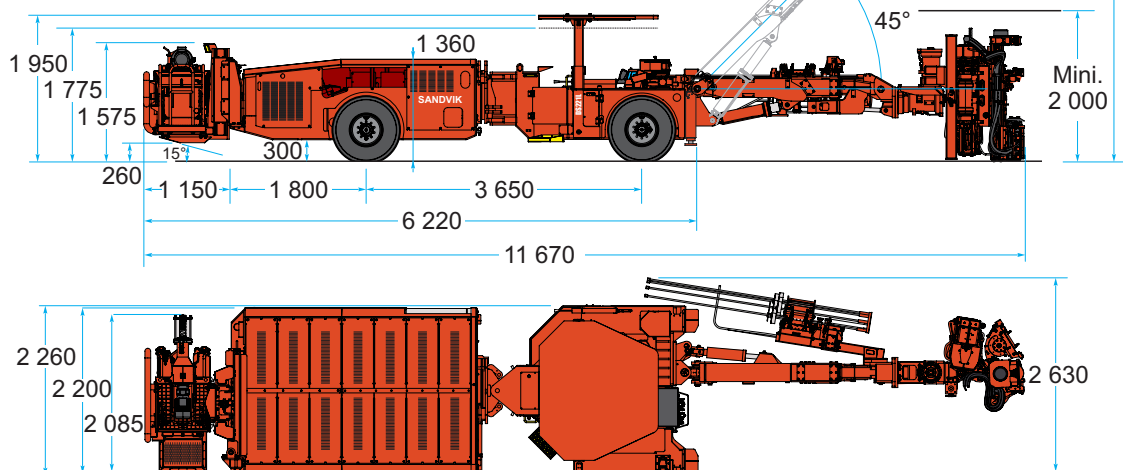
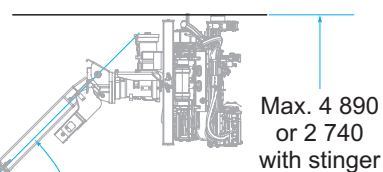
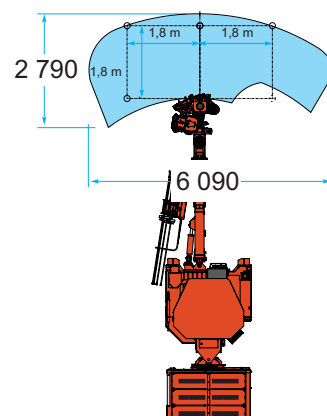


First position machine can drill and install the cable in these 4 holes

FACE

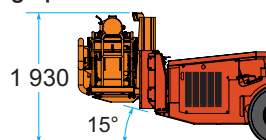
Machine move to the second and third position, machine can drill and install the cable in these 4 holes

Dip

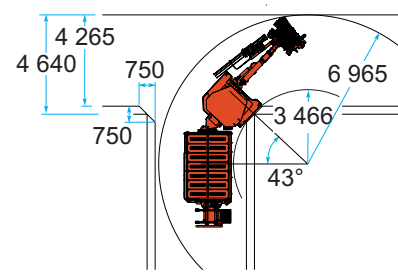
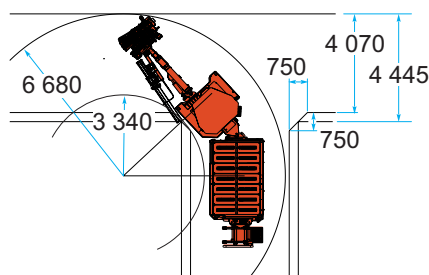
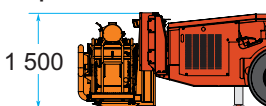


Positions of cement mixer

High position



Low position



All dimensions in mm

All dimensions in mm

Sandvik Mining and Rock Solutions reserves the right to make changes to the information on this data sheet without prior notification to users. Please contact a Sandvik representative for clarification on specifications and options.