



# DL331 TOP HAMMER LONGHOLE DRILL

## TECHNICAL SPECIFICATION

Sandvik DL331 is a fully-mechanized, highly versatile and compact electro-hydraulic top hammer longhole drill designed for underground mining in 3 x 3 m or larger production drifts. It is capable of drilling vertical and inclined fans and single or parallel Ø51...76 mm longholes up to 23 meters in depth, using R32, T38 and T45 rock tools.

The DL331 is mounted on a 4-wheel drive frame-steered and diesel-powered carrier. It is equipped with the RDX5 hydraulic rock drill, LHF2000 feed, ERCH12 rod handler, SB60P boom, THC561 hydraulic control system and operator's safety cabin for maximum productivity, safety and hole accuracy. The 360° drilling module rotation and wide boom swing and tilt angles make the unit suitable for most mining methods and various service support applications. The THC561 drilling control system is fitted with automatic features for maximum productivity in varying rock conditions, in up- and downhole drilling. The layout of the NC5-17 carrier is designed for good visibility and stability, ensuring safe tramming in narrow mine drifts. The operating and maintenance interface are designed for easy access, safe operation and all service points are accessible from the ground level.

### KEY FEATURES

Hydraulic rock drill	RDX5 (20 kW)
Drilling module	LHF2000 / ERHC12
Rod length	4' - 6' (1 220 - 1 830 mm)
Telescopic boom	SB60P (1 200 mm extension)
Minimum drift size (H x W)	3 000 mm x 3 000 mm
Drift width in T-section	4.3 m (minimum)
Boom coverage (vertical holes)	6 800 mm
Distance of holes from the wall	90 mm
Transport height (with cabin)	2 920 or 2 670 mm
Transport width	2 020 mm
Transport length	11 285 - 11 580 mm
Transport weight	15 500 kg

### ROCK TOOLS AND HOLE LENGTH

Type	Rod Ø (mm)	Hole Ø (mm)	Maximum hole length (m)*		
			4' rods	5' rods	6' rods
R32	32	51	15.5	19.5	23.5
T35	39	54	14.3	18	21.7
T38	39	64	14.3	18	21.7
T45	46	76	13.1	16.4	19.8

*\*) Feed in contact with rock and front stinger retracted*



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## HYDRAULIC ROCK DRILL

Type of rock drill	RDX5 (TS2-433)
Percussion power	20 kW
Percussion pressure	Up to 220 bar
Percussion rate	67 Hz
Rotation speed	0 - 250 rpm (OMS125)
Rotation torque	625 Nm (OMS125)
Weight	210 kg
Length with shank adapter	1245 mm (long shank)
Filling device for accumulators	Specification TS2-430

## DRILLING MODULE

Type of feed	LHF2000 (TS2-385)
Rod length	1 220 - 1 830 mm (4' - 6')
Retaining centralizer	FCC3
Cuttings diverter	Standard
Set-off from stope face	600 mm
Feed force	20 kN
Feed and return speed	0.1 m/s and 0.2 m/s (fast feed)
Front and rear stinger	Mounted on feed
Stinger extension	600 mm (front stinger) 1 200 mm (rear stinger)
Length with stingers extended	5 050 - 5 660 mm
Type of rod handling system	ERHC12 (TS2-168)
Storing capacity	12 + 1 rods (R32) 11 + 1 rods (T38) 10 + 1 rods (T45)

## DRILLING MODULE DIMENSIONS

Type	LHF2006 (Standard)	LHF2005 (Option)	LHF2004 (Option)
Rod length	6' (1 830 mm)	5' (1 525 mm)	4' (1 220 mm)
Total length	3 460 mm	3 155 mm	2 850 mm

## LONGHOLE BOOM

Telescopic boom	SB60P (TS2-316)
Boom swing	Left 29° / Right 31°
Boom head swing	Left 45° / Right 45°
Drilling module roll-over	360°
Boom extension	1 200 mm
Drilling module travel	1 200 mm
Boom coverage (vertical holes)	6 800 mm
Feed parallelism	Automatic hydraulic
Boom head swing	± 45°

## HYDRAULIC SYSTEM

Power pack	HPP555 (1 x 55 kW) IE3 electric motor
Filtration (pressure / return)	20µ / 10µ Quick couplings for oil filtration
Oil tank volume	180 liters
Cooler for hydraulic oil	OW30 oil-to-water (1 x 30 kW)
Low oil level indication	Low level oil switch

## DRILLING CONTROL SYSTEM

Type of control system	THC561
Operating principle	Hydraulic control
Manual boom control	Direct control Fully proportional Hydraulic auto-parallelism
Drilling control	Semi-auto collaring Feed / percussion pressure control Feed compensation Coupling/uncoupling Flushing control Reaming control
Drilling safety	Boom movement prevention switch
Diagnostics system	Alarm display

## ELECTRIC SYSTEM

Standard voltages	380 - 690 V (50 or 60 Hz)
Total installed power	70 kW
Main switch gear	MSE 5
IP classification	Specification TS2-132
Allowed voltage fluctuation	± 10%
Starting method	Star-Delta 380 - 575 V DOL 600 - 690 V
Automatic cable reel	TCR1
Cable reel control	At operator station and remote control at rear of the machine
Front and rear lights	8 x 50 W (24 V) LED
Remote controlled search light	1 x 40 W (24 V) LED
Carrier positioning lights	2 x Laser type
Sealed AGM batteries	2 x 12 V (95 Ah)

## AIR AND WATER SYSTEMS

Flushing of holes	By water
Water booster pump type	WBP1 (4 kW / 50 Hz)
Water pump capacity	33 l/min at 15 bar (inlet pressure = 4 bar)
Water pump inlet pressure	2 - 7 bar
Flushing water pressure	10 - 20 bar
Shank lubrication device	SLU1 (air / oil mist)
Air compressor	CTN10 (1.0 m³/min at 7 bar)
Rock drill air consumption	180 - 250 l/min
Rock drill oil consumption	250 - 350 g/h
Air cleaner for external supply	IP5 including connection

## OPERATOR'S SAFETY CABIN

Cabin certification	FOPS / ROPS (ISO 3449 / 3471) Height 2 920 mm
Operation	Standing drilling, seated tramming
Sound pressure level according to EN 16228	Operator station: 80 dB(A)
Operator's seat	Ergonomic T-back seat
Air conditioning	Cooling only
Cabin safety grill	For front screen
Audio system	Radio / USB MP3 / Bluetooth® and loudspeakers

## CARRIER

Type of carrier	NC5-17 (frame-steered)
Carrier articulation	± 38°
Rear axle oscillation	± 10°
Ground clearance	320 mm
Diesel engine	Deutz TCD2012, 74 kW, Tier 3, Stage IIIA, Canmet, China 2
Exhaust catalyzer	Standard
Transmission	Hydrostatic, automotive
Axles	Spicer 112 (front) and 123 (rear)
Tires	12.00-20
Service brakes	Hydraulically applied wet disc brakes
Parking and emergency brakes	SAHR fail safe type wet disc brakes
Tramming speed	12 km/h (horizontal) 5 km/h (14%=1:7=8°)
Gradeability / sideways tilt	Max. 15° / 5° (according to ISO 18758)
Carrier stabilization	2 x hydraulic telescopic jacks (front) 2 x hydraulic jacks (rear)
Fuel tank	90 liters
Tramming oil tank	55 liters
Filling pump for hydraulic oil	Electric
Hand held fire extinguisher	1 x 6 kg (type ABC)
Brake release	By manual hand pump
Tramming alarm	Standard
Knowledge Box™	Connectivity solution (TS2-535) My Sandvik insight readiness (TS2-390)
Documentation	1 x Operator's manual 1 x Technical manual (in English only) 1 x Parts manual (in English only) 2 x USB key of manuals (PDF files) 1 x Online Parts manuals (MySandvik)

## OPTIONAL ITEMS

### Drilling system

Conversion kit	From one rod size (thread) to another
Power extractor	For RDX5
Rear stinger extension kit	1 000 mm

### Instrumentation

Access detector system	Mandatory in Europe (TS2-211)
Access protector system	Mandatory in Canada (TS2-211)
Drilling instrument	TIS with USB data collection
Spirit level angle indicators	2 pcs (on feed)

### Electric system

*Multivoltage Pro	380 - 1 000 V (50 or 60 Hz)
*Starting method	Star delta 600 V - 690 V
Dewatering pump outlet readiness	8 kW (site voltage 380 - 690 V) N/A USC package
Electric cables	Specification TS2-121
Ground fault and overcurrent unit	VYK (N/A USC package)
Power outlet on carrier	110 or 230 V (16 A), site voltage 380 - 690 V
Amber flashing light	LED (24 V)
Battery jump start	CAT

## OPTIONAL ITEMS

### Air and water system

*Air compressor	CT28 (2.8 m³/min, 18.5 kW)
Air mist flushing kit	For external air and water supply
2 x 60 liters air receivers	For end-of-hole flushing (requires CT28)
Hooks and water hose	Ø32 mm hose (L: 80 m)
Water hose reel and hose	THR and Ø32 mm hose (L: 80 m)

### Cleaning system

LP system with reel	Up to 15 bar (TS2-343)
HP system with reel	Up to 180 bar (TS2-343)
*Two-directional fan	Radiator and transmission oil cooler

### Greasing system

Automatic system	Lincoln (carrier and boom)
Carrier centralized greasing points	Specification TS2-463
Manual system	Greasing gun, cartridge and air hose reel (TS2-322)

### Operator's safety cabin or canopy

*Low height cabin	FOPS / ROPS certification Height 2 670 mm
*Safety canopy with safety grill	FOPS (ISO 3449)
Cabin heating system	For drilling and tramming (Webasto)
Tramming cameras	For cabin or canopy

### Fire suppression system

Spare hand held fire extinguisher	1 x 6 kg (type ABC)
Automatic fire suppression system	Sandvik Eclipse™ (TS2-461)
Manual or automatic system	6 nozzles, Ansul (TS2-460)

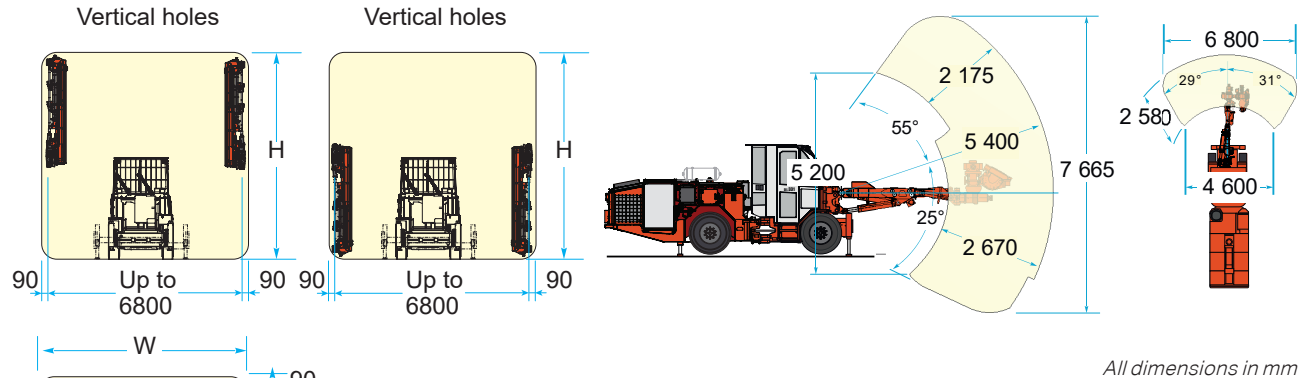
### Carrier

*Diesel engine	Deutz TCD3.6, 74 kW, Tier4F, Stage V, Canmet Deutz TCD3.6 DWG, 75 kW, China 4 with DPF (particles filter)
*Foam filled tires	4 pcs
Fast filling and evacuation system	Wiggins (complete)
*Knowledge Box™	My Sandvik productivity readiness (TS2-390)
Wheel chocks and holders	2 pcs
*Tramming alarm	Cri du Lynx®
Speedometer	For NC5-17 carrier

### Extra items

Spare rock drill	RDX5
Tools and pressure test box	Specification TS2-429
Spare wheel assembly	Air or foam filled tires
Special tools for rock drill	Field tool set (TS2-434) Complete tool set (TS2-435)
Warranty extension	One year (excl. Kazakhstan)
Documentation	Extra manuals, PDF manuals
Package: Extremely low ambient temperature	Specification TS2-209
Package: Country specific options	LAM, CAN, USC, AUS
Package: Harsh water	Basic or Advanced (TS2-049)
Package: Onboard air supply	For air mist drilling

*\*) Replaces standard feature*



#### MINIMUM PRODUCTION DRIFT SIZE\*

	H	W
LHF2004 mm	2 960	2 960
LHF2005 mm	3 260	3 260
LHF2006 mm	3 570	3 570

\*100 mm clearance

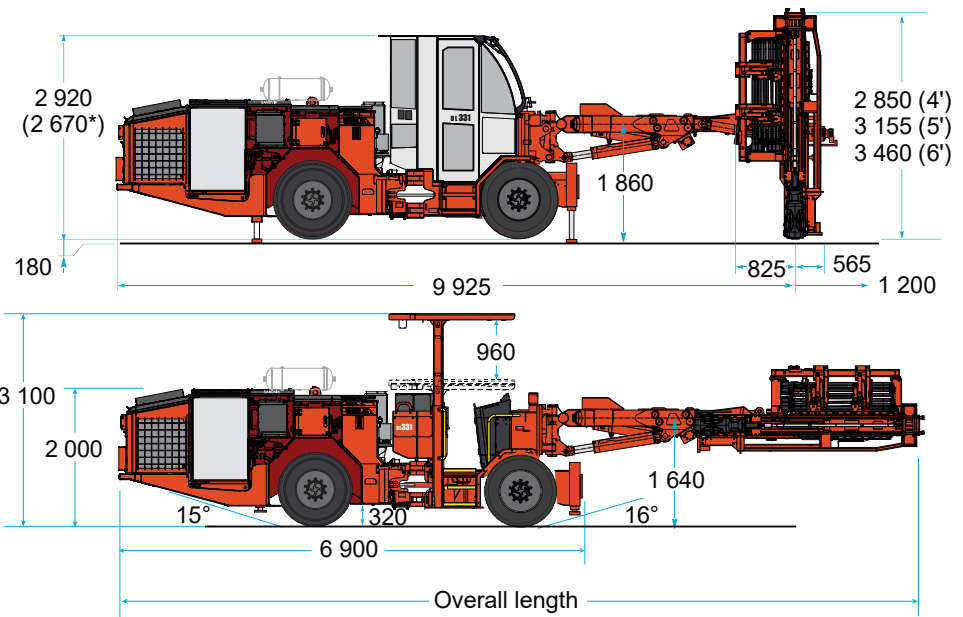
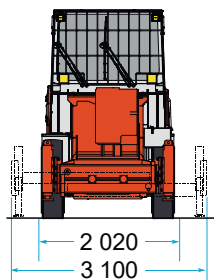
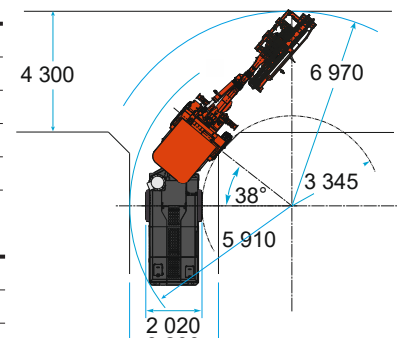
#### MAXIMUM PRODUCTION DRIFT SIZE\*\*

	H	W
LHF2004 mm	4 060	4 060
LHF2005 mm	4 360	4 360
LHF2006 mm	4 670	4 670

\*\*Rear stinger extended, front stinger retracted

#### DRIFT AND UNIT DIMENSIONS

Type of feed	LHF2004	LHF2005	LHF2006
Drilling module total length	2 850	3 155	3 460
Minimum drift size	3 000	3 300	3 600
Unit overall length	11 285	11 580	11 580



\*With low cabin option All dimensions in mm

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#### 4. SANDVIK DL331 TOP HAMMER - LONG HOLE DRILL