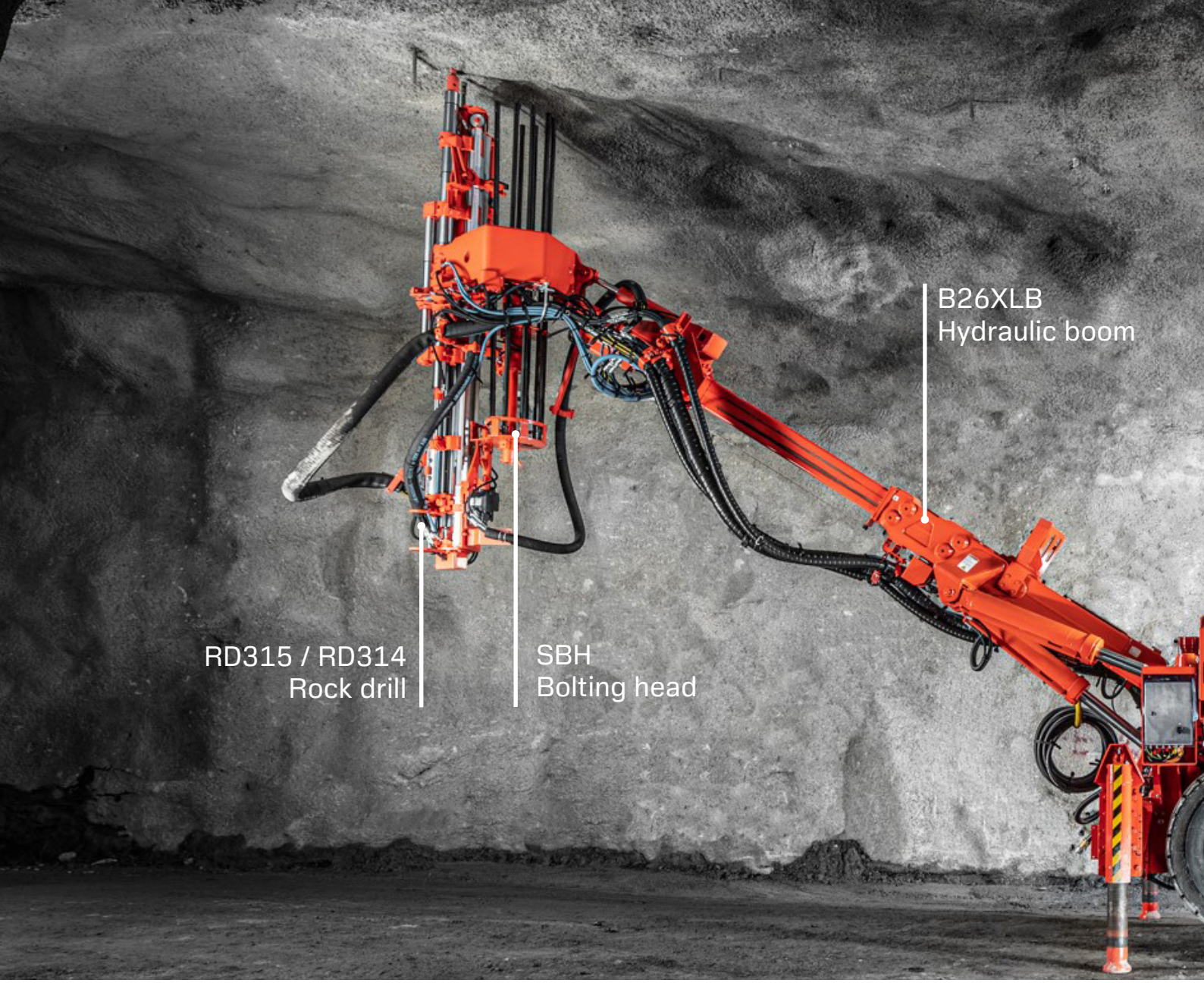
SANDVIK

DS311DE
Rock support bolter

Technical Specification

mining.sandvik



Productivity and versatility in mechanized bolting

Key features

Optimum coverage	6 350 x 2 100 mm (roof)
Hydraulic rock drill - drilling line - bolting line	 RD315, 15 kW (OMS100) RD315, 15 kW (OMS125)
Bolting head	SBH, 5 to 10 ft
Boom	B26XLB
T-section width in turning	4 890 mm (SBH8/B26XLB)
Transport width	2 020 mm
Transport height (canopy)	2 140 mm / 3 100 mm
Transport height (cabin)	2 920 mm or 2 670 mm
Transport length	12 020 mm (with SBH8)
Total weight	16 000 - 18 000 kg depending on options

Sandvik DS311DE is a one-man-operated electro-hydraulic rock bolter for rock reinforcement in underground mines with medium to large cross sections.
The operator works under supported ground, protected under a FOPS / ROPS certified cabin structure. Mechanization of the bolting process ensures efficient, constant and durable rock bolt integrity.

Built from proven and reliable components, Sandvik DS311DE uses RD314/RD315 rock drill for fast performance, installed on the Sandvik Bolting Head with low operating cost. Versatility is also one of the rock bolter's key characteristics. Sandvik DS311DE can install most common rock bolts ranging in length from 1.5 to 3 meters (5 to 10 feet).

Sandvik DS311DE drills is powered by diesel engine with low emissions (Tier 3, Tier 4F, China 4 or Stage V in option)

The Sandvik DS311DE drills from both diesel or electric power, which makes it the ultimate versatile rock bolter.

Sandvik DS311DE can be used for both rehabilitation and rock reinforcement in production areas.

The standard unit requires a water supply from the mine network, however a water tank option enable the rock bolter to operate independently.

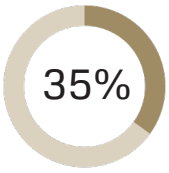
Sandvik recommends DSI Ground Support https://www.dsiunderground.com/

Main benefits

Highly versatile bolter

DS311 bolter comes in three versions: DS311 (diesel tramming and electric drilling), DS311D (diesel engine for tramming and drilling for areas without electrical power) and DS311DE (diesel tramming and electric or diesel drilling).

Engineered with modern, simple and reliable technologies, Sandvik DS311 ensures maximum safety and consistency in the bolting process.

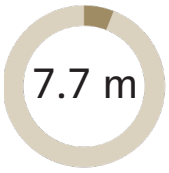


Higher productivity

Up to 35%* more productive than market standards

Improved safety

100%* safer than manual bolting



Extended performance

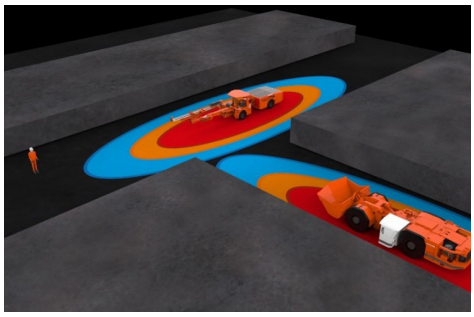
Up to 7.7m height mechanized bolting

Optimized working environment

Modern and ergonomic cabin for maximum operator comfort with improved visibility and reduced noise level

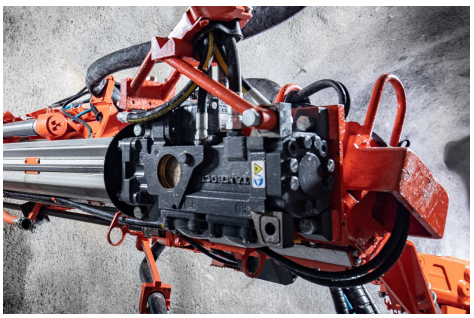
Indicator lights for inhibition switches status

This option provide a clear visual indication if the boom movements have been isolated. People in the area can easily visualize if it is authorized to enter in the boom area for a short period of time.



Proximity detection system interface (PDS level 9)

PDS system is generally designed to inform the operator and to slow down the machine and/or stop the equipment in case of a collision risk with a person or object carrying a tag.



High frequency rock drill

Sandvik RD315 or RD314 are compact, robust and universal hydraulic percussive rock drill. It is known for its hydraulic efficiency and high penetration rate.

Multipurpose bolting head

The SBH bolting head is suitable for bolt sizes from 5’ (1 525 mm) to 10’ (3 050 mm) and can operate in a gallery as low as 2.9 m height.

Efficient control system

The THC561 drilling control system increases drilling performance and reduces the wear on both rock drill and rock tools for an extended lifetime.

Sandvik 365 Parts and Services

Proudly keeping you on track!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik DS311DE bolter’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.

Technical Specification

Hydraulic rock drill

Type of rock drill	RD315 (TS2-505) Drilling line	RD315 (TS2-505) Bolting line
Percussion power	15 kW	15 kW
Percussion pressure	Max. 180 bar	Max. 180 bar
Percussion rate	95 Hz	95 Hz
Rotation speed	Max. 530 rpm (100 cc)	Max. 430 rpm (125 cc)
Rotation torque	Max. 340 Nm (100 cc)	Max. 420 Nm (125 cc)
Hole size	33 - 43 mm (1"$^{9}/_{64}$ - 1"$^{11}/_{16}$)	_
Recommended rod	R32 - HEX25 - R25	_
Shank adapter	R32 female	R32 male
Weight	126 kg	126 kg

Bolting head

Type of bolting head (TS2-208)		SBH5	SBH6	SBH7	SBH8	SBH10
Bolt length	mm	1 525	1 830	2 135	2 440	3 050
Drill steel length	mm	1 975	2 175	2 475	2 795	3 405
Hole depth	mm	1 755	1 950	2 250	2 570	3 185
Total length (A) (drilling)	mm	2 685	2 885	3 185	3 505	4 115
Total length (B) RD314 or RHR50 drilling RHR50 bolting	mm	2 905	3 225	3 525	3 845	4 455
Total length (B) RD315 drilling RD315 or RHR50 bolting	mm	2 965	3 285	3 585	3 905	4 515
*) Recommended operating height	mm	3 165	3 485	3 785	4105	4 715
**)Total weight	kg	1 305	1 335	1 365	1 405	1 445

Dimensions +0 mm to + 5 mm
**)Total length + 100 mm clearance on each side*
***)The weights are theoretical and given for information*
Dimensions and weights are for a bolting head equipped

Boom

Type of boom	B26XLB (TS2-207) Standard	B26B (TS2-206) Optional
Boom extension	1 700 mm	1 200 mm
Roll-over angle	360°	360°
Boom weight, net	1 500 kg	1 350 kg

Hydraulic system

Powerpack	HPP375 (1 x 75 kW) or IE3 electric motor or Diesel engine (100 kW)
Filtration size (pressure / return)	20 µ / 10 µ Quick couplers for kidney filtration
Oil tank volume	330 liters
Filling pump for hydraulic oil	Electric
Cooler for hydraulic oil	OW45 oil-to-water (1 x 45 kW)

Drilling control system

Type of control system	THC561 (TS2-362)
Operating principle	Hydraulic control
Manual boom control	Direct control Fully proportional Hydraulic parallelism
Drilling control	Manual collaring Feed / percussion pressure control Feed / percussion pressure monitoring Anti-jamming system Flushing control (On /Off/Auto.)
Boom movements prevention switch	2 x switches (on each side)

Electric system

Standard voltage	380 – 690 V (±10%)
Total installed power	80 kW
Main switch gear	MSE 5
IP classification	Specification TS2-132
Starting method	Star Delta 380 V - 575 V DOL 600 -690 V
Automatic cable reel	TCR1
Cable reel controls	At operator station and remote control at rear of the machine
Sealed AGM batteries	2 x 12 V, 95 Ah
Cable plug holder	On central rear hood
Front working lights (combined working and driving)	4 x 50 W LED (4 200 lm, 6 000 K)
Rear working lights (combined working and driving)	4 x 50 W LED (4 200 lm, 6 000 K)
Search light	Remoted with cabin: 1 x 40W LED (2 300 lm, 5 700 K) Manual with canopy: 1 x 17W LED (600 lm, 6 000K)
Rear brake / parking lights	2 x Red LED

Air and water flushing

Flushing of holes	By Water
Water booster pump type	WBP1 hydraulic driven
Water pump capacity	13,6 l/min
Water pump inlet pressure	2 bar (min.)
Flushing water pressure	10 - 15 bar
Shank lubrication device	SLU1 (air / oil mist)
Air compressor	1 m^3/min at 7 bar, hydraulic driven

Operator's safety cabin

Cabin certification	FOPS / ROPS (ISO 3449 / 3471) Cabin with safety grill, 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
Tramming cameras	1 x rear frame 2 x on each side of cabin or canopy

Technical Specification

Carrier

Type of carrier	NC5-17
Steering system	Frame steering
Carrier articulation	Up to ± 38°
Rear axle oscillation	± 10°
Ground clearance	320 mm
Diesel engine	Deutz TCD3.6, 100 kW, Stage IIIA
Exhaust catalyzer	Standard
Transmission	Hydrostatic, automotive
Axles	Dana Spicer 123 (front and rear) with extended differential breathers
Tires	12.00-20 foam filled tire
Service brakes	Hydrostatic and positive braking
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)
Fuel recommended	Diesel EN590 / HVO EN15940
Fuel tank	160 liters
Tramming oil tank	55 liters
Carrier stabilization	2 x Telescopic (front) 2 x Vertical (rear)
Bolt storage	Left side
Tramming alarm	Backward alarm
Knowledge Box™	Connectivity solution (TS2-535) My Sandvik insight readiness (TS2-390)
Documentation	1 x Operator's manual 1 x Maintenance 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)
Underground standard working environment	0°C < Mine air T° < 30°C Humidity < 85% -1000 m < Altitude < 4000 m When applicable : 0° < Water flushing T° < 30°C 5 < Flushing or mine water pH < 10 Flushing water salt concentration < 2%

Optional features and packages

Rock drill	
Type of rock drill	RD314 instead of RD315 (drilling line)
*RHR40 or RHR50 rotary drill	Instead of RD315 (drilling line)
Boom	
*Type of boom	B26B instead of B26XLB
Wear plates boom	Easy adjustable on B26 boom
Boom suspension system	Specification TS15-232
Bolting option	
*Bolting alternatives	GCR, GCC, WI, S, MD, MDX, M
2 or 3 bolt lengths carousel	SBH10 (8' and 7'), SBH8 (7' and 6'), SBH7 (6'), SBH6 (5')
Screen handler	On the bolting head (TS2-355) with hooks for mesh on carrier side
Bolting head oiler	For GCR and GCC system (TS2-291)
Rod retainer on bolting head	Requires indicator lights for boom movement prevention switch.
Bolt plate holder	
Hydraulic system	
*Biodegradable oils	PLANTOHYD SE 68 or PLANTOHYD SE 46 (arctic)
Drilling control system	
Indicator lights	For boom movement prevention switch
Access detector system	Mandatory in Europe (TS2-211)
Access protector system	Mandatory in Canada (TS2-211)

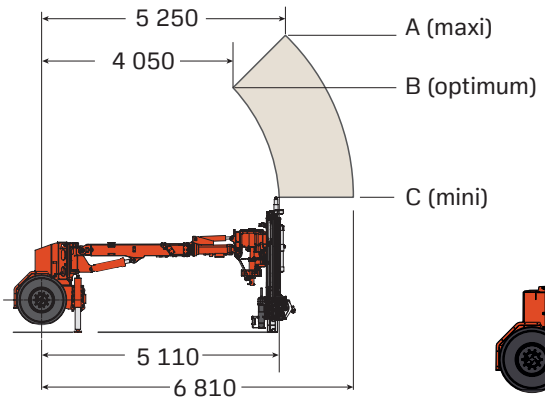
Optional features and packages

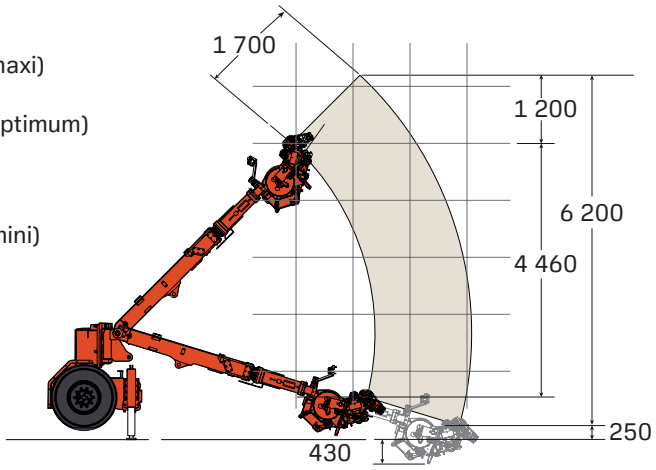
Electric system	
*Optional voltage	Multivoltage (380 - 1 000 V), at 50 or 60Hz (fuel tank 120 liters)
*Electric cable	Specification TS2-121, delivered with cable safety kit - no plug
Ground fault and overcurrent protection	VYK
Battery jump start	Optional
Amber flashing light	LED (24 V)
Air and water system	
Water flushing	Flushing flow control
Air mist flushing kit	Specification TS2-285
*Air compressor	1.6 m^3/min at 7 bar hydraulic driven
Water hose with hooks	32 mm (1¼"), 80 meters
Hooks for air and water hoses	2 pcs
Cleaning system	
HP system with reel	Up to 180 bar (TS2-343)
Greasing systems	
Centralized greasing points	Specification TS2-463
Manual system	Greasing gun and cartridge with hose reel (TS2-463)
Automatic system	Carrier (TS2-463)
Operator's safety cabin / canopy	
*Safety canopy	FOPS (ISO 3449)
*Low cabin with safety grill	FOPS / ROPS certification Height 2 670 mm,
Cabin heating	During drilling and tramming
Cabin audio system	Radio / USB MP3 / Bluetooth® and loudspeakers
Seat belt and door interlock	Brake applied or buzzer
Safety grill	For canopy
Fire suppression system	
Hand held fire extinguisher	1 or 2 x 6 kg or 7.7 kg (Type ABC)
Manual or automatic system	6 nozzles, Ansul (TS2-460)
Auto. fire suppression system	Sandvik Eclipse™ (TS2-461)
Carrier	
*Diesel engine	TCD3.6, 100 kW, Tier4F, Stage V, Canmet, China 4
Fast filling system	Wiggins (complete)
Brake release	Manual hand pump
*Knowledge Box™	My Sandvik productivity readiness (TS2-390)
Wheel chocks and holders	2 x stop blocks (1 x set)
*Directional tramming alarm	Cri du Lynx®
Proximity detection system interface	CANbus level 9
Extra items	
Berg plug and socket	250 A
Spare rock drill	RD315, RD314
Filling device for accumulators	Specification TS2-430
Tools and pressure test box	Specification TS2-429
Spare wheel assembly	12.00-20 foam filled tire
Special tools for rock drill	Field tool set (TS2-119)
Warranty extension	One year (excl. Kazakhstan)
Documentation	Extra paper or PDF manuals
Package: Country specific options	LAM, USC, AUS, CE package
*Package: Harsh water	Basic or advanced (TS2-049)
*Package: High ambient temperature 30°C < Mine air T° < 40°C	Oil/Water cooler, mine water supply CT28 limited to 1,2 m3 / min Larger evaporator for air conditioning

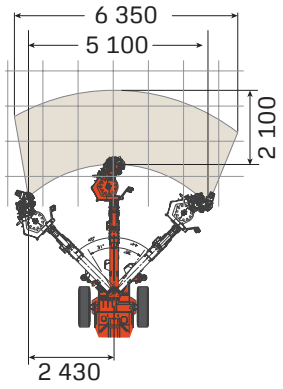
**) Replaces standard feature*

Technical drawings

All dimensions in mm

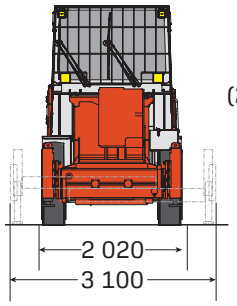


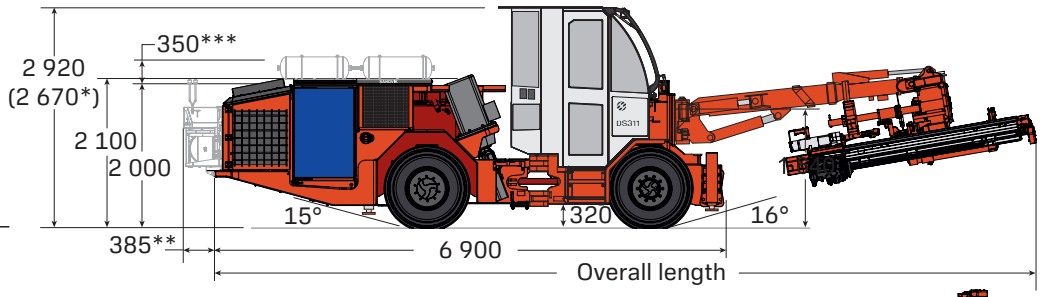


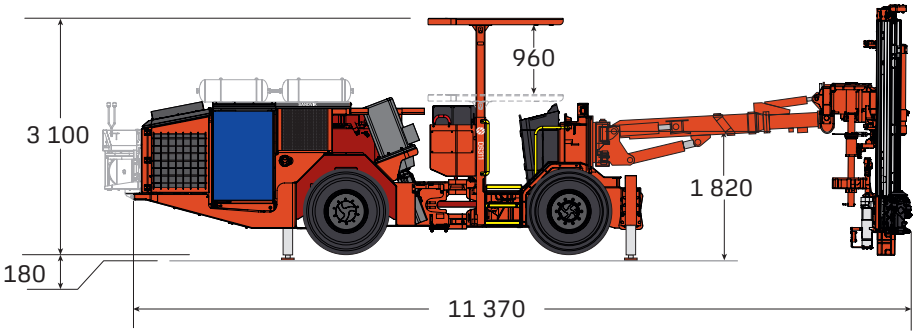


Coverage
at optimum height (B)

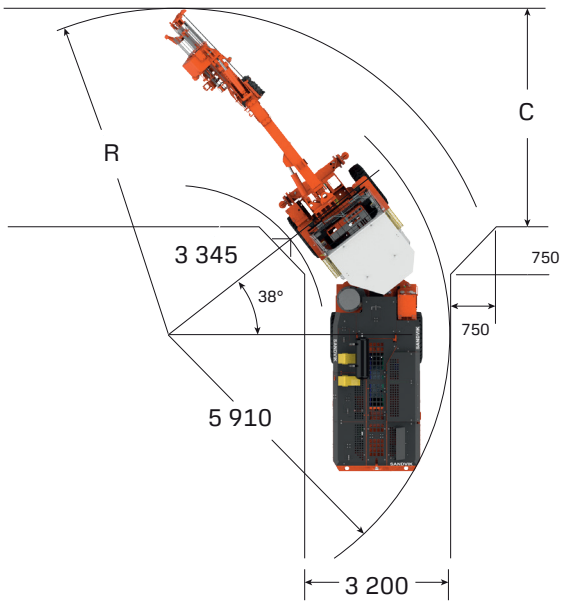
			SBH5	SBH6	SBH7	SBH8	SBH10
DS311DE B26XLB	A (Maxi)	mm	6 810	7 030	7 090	7 340	7 650
	B (Optimum)	mm	5 610	5 830	5 890	6 140	6 460
	C (Mini)	mm	2 970	3 270	3 570	3 890	4 540
	Overall length	mm	11 530	11 660	11 820	12 020	12 325







) With low cabin option **) With Sandvik eclipse option*) With Air receiver option*



		B26XLB boom Standard		B26B boom (Option)	
		Radius (R)	T-cross (C)	Radius (R)	T-cross (C)
DS311DE (SBH5)	mm	7 195	4 485	6 800	4 165
DS311DE (SBH6)	mm	7 360	4 650	6 970	4 330
DS311DE (SBH7)	mm	7 410	4 700	7 020	4 380
DS311DE (SBH8)	mm	7 600	4 890	7 210	4 570
DS311DE (SBH10)	mm	7 860	5 150	7 465	4 830

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