

DD411 DEVELOPMENT DRILL

TECHNICAL SPECIFICATION

Sandvik DD411 is a single-boom electro-hydraulic jumbo for fast and accurate drilling in drifting and tunneling of up to 90 m² (with SB90) cross sections.

The hydraulic controlled drilling system with added automatic functions and different optional instrumentation levels enable productive and high quality excavation. Built-in diagnostics help to minimize maintenance time. RD520 rock drill delivers superior performance with high consumable life.

Sandvik SB booms series has a large optimum shaped coverage and full automatic parallelism. The boom can also be used for cross-cutting and bolt hole drilling. The powerful four-wheel-drive center articulated carrier ensures rapid and safe tramming in tight turning radius and environment.

KEY FEATURES

Coverage area	40 m ² (up to 90 m ² with SB90)
Hydraulic rock drill	1 x RD520, 20 kW
Drilling feed	1 x TF512, 12 - 16 ft
Boom	1 x SB40
Control system	THC561, hydraulic
Hole length	Up to 4 660 mm
Drift size class (H x W)	4 500 mm x 4 500 mm
Turning width (T-section)	3 750 mm (with TF512)
Transport width	2 250 mm
Transport height	2 400 mm / 3 200 mm
Transport length	12 600 mm
Total weight	18 000 kg with SB40 and SB60 19 000 kg with SB90 depending on options



HYDRAULIC ROCK DRILL

Type of rock drill	RD520 (TS2-235)
Percussion power	20 kW
Percussion pressure	Max. 220 bar
Percussion rate	74 Hz
Stabilizer	Hydraulic
Rotation speed	Max. 400 rpm (with OMS125)
Rotation torque	400 Nm (with OMS125)
Hole size (drifting)	43 - 64 mm
Hole size (cut hole)	76 - 127 mm
Recommended rod	T38 - Hex 35 - R32 T38 - R39 -R35
Shank adapter (male)	T38
Weight	225 kg
Length	1 010 mm
Profile height	90 mm

DRILLING FEED

Type of feed	TF500-12' Standard	TF500-14' Optional	TF500-16' Optional
Feed force	Max. 25 kN	Max. 25 kN	Max. 25 kN
Total length	5 270 mm	5 880 mm	6 490 mm
Hole length	3 440 mm	4 050 mm	4 660 mm
Rod length	3 700 mm	4 305 mm	4 915 mm
Net weight	500 kg	530 kg	560 kg

BOOM

Type of boom	SB40 (TS2-231)
Parallel coverage	44.5 m ²
Parallelism	Automatic hydraulic
Boom extension	1 050 mm
Feed extension	1 350 mm
Boom weight, net	2 100 kg
Roll-over angle	35°

HYDRAULIC SYSTEM

Powerpack	1 x HPP555 (55 kW)
Filtration (pressure / return)	20 μ / 10 μ
Oil tank volume	270 liters (drilling)
Oil tank filling pump	Electric
Cooler for hydraulic oil	OW30 oil-to-water (30 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	Feed / percussion control Flushing control
Automatic cycle	Stop and return automatics

ELECTRIC SYSTEM

Standard voltages	380 - 690 V (± 10%)
Total installed power	85 kW
Main switch gear	MSE 10
IP classification	Specification TS2-132
Starting method	Star delta 380 V - 690 V Soft starter 575 V
Automatic cable reel	TCR3E with spooling system
Cable reel control	Operator station + remote control
Batteries	2 x 12 V, 145 Ah
Auxiliary outlet	1 x 110 V or 1 x 230 V, 16 A
Battery jump start	Standard
Cable plug holder	Hook type holder and cable pull stock
Front and rear lights (combined working and driving)	10 x 50 W LED (4 200 lm, 6 000 K)
Parking rear brake / park lights	2 x Red LED
Stair ans service light	LED (24 V)

AIR AND WATER SYSTEM

Flushing of holes	By water
Water booster pump type	WBP1
Water pump capacity	65 l/min
Water pump inlet pressure	2 bar (Min.)
Flushing water pressure	10 - 20 bar
Shank lubrication device	SLU1 (air / oil mist)
Air compressor	CTN10, 1 m ³ /min (7 bar)
Compressed air outlet	Quick coupling
Rock drill oil consumption	180 - 250 g/h
Rock drill air consumption	250 - 350 l/min

OPERATOR'S SAFETY CABIN

Standard cabin	FOPS / ROPS (ISO 3449 / 3471)
Type of cabin	Standard height
Unit height in tramming	2 840 mm
Operation	Standing drilling, seated tramming
Operator's seat	For tramming Adjustable with seat belt
Sound pressure level EN 16228	Cabin: 80 dB(A)
Air conditioning	Fluorinated gas : R134a Filled weight: 1.95 kg CO ₂ equivalent: 2.7885 tons Global Warming Potential: 1430
Windows	Safety laminated, with wiper Stainless steel windows frames

CARRIER

Type of carrier	NC7 (frame-steered)
Carrier articulation	± 40°
Rear axle oscillation	± 10°
Ground clearance	320 mm
Diesel engine	MB OM904LA, 110 kW, Tier 3, Stage IIIA
Exhaust catalyzer	Standard
Transmission	Hydrodynamic, Spicer T20 000
Axles	Spicer
Tires	12.00-20
Service brakes	SAHR type, fail save wet disc brakes
Parking and emergency brakes	SAHR type, fail save wet disc brakes
Tramming speed	16 km/h (Horizontal) 6 km/h (14%=1:7=8°)
Gradeability / sideways tilt	Max. 15° / 5° (according to EN 16228-2)
Rod rack on carrier side	For 10 - 16 ft rods and two shank adapters
Fuel tank	140 liters
Carrier stabilization	2 x Vertical (front) 2 x Vertical (rear)
Centralized greasing points	Specification (TS2-463)
Hand held fire extinguisher	1 x 7.7 or 9 kg (type ABC)
Tramming alarm	Standard
Knowledge Box™	Connectivity solution (TS2-535)
Colour scheme	Sandvik
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 Toolman USB Key

OPTIONAL FEATURES AND PACKAGES**Rock drill**

*Type of rock drill	RDX5 instead of RD520
Power extractor	For RD520

Drilling feed

*Feed length	14', 16'
*Telescopic feed	TFX6/12, TFX8/14 TFX10/16 with SB60 and SB90
Rod retainer	TRR1 incl. safety wire, add 35 mm length of the feed
Two rods system	TRS included TRR1 with safety wire.

Boom

*Type of boom	SB40NV instead of SB40 SB60 instead of SB40 SB90 instead of SB40
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Hydraulic system

*Oil tank filling pump	Manual
Vaccum pump	For hydraulic system

Drilling control system

Constant speed drilling	Replaces feed / percussion control
Reaming mode switch	Selection switch between standard / reaming hole drilling
Instrumentation	TMS D1 for TFX-feed TMS DDSS1 for TF-feed TCAD+ with iSURE I Basic (Drill plan design)
Access detector and protector	Mandatory in Europe (TS2-211)

OPTIONAL FEATURES AND PACKAGES**Electric system**

*Optional voltage	1 000 V (50 or 60 Hz) with Direct-On-Line starter
*Electric cable	Specification TS2-121
Ground fault and overcurrent protection	VYK
Auxiliary outlet	1 x 110 V or 1 x 230 V, 16 A
Battery jump start	Option
Dewatering pump outlet	Site voltage 380 - 690 V (Max. 8 kW)
Amber flashing light	LED (24 V)
Indicator light for boom movement prevention switch status	2 x on both sides (green or red depending status), 1 x indicator inside cabin

Air and water system

Flushing flow control	One boom
Air mist flushing kit	IP5 air cleaner and flow control
End of hole air flushing	Including CT28 air compressor
Water hose reel with water hose	THR2.5E with 38 mm (1 ½"), 65 m
Compressed air outlet	Quick coupling

Cleaning system

LP system with reel	Up to 15 bar (TS2-343)
HP system with reel	Up to 180 bar (TS2-343)

Greasing systems

Manual system	Greasing unit with pump, reel and nozzle (TS2-463)
Automatic system	Lincoln (complete)

Operator's safety cabin / canopy

*Safety canopy	FOPS (ISO 3449)
*Stainless steel cabin	FOPS (ISO 3449)
Cabin heating	During tramming and drilling
Cabin audio system	CD player / radio / MP3 and loudspeakers
Boot washer	At cabin entrance

Fire suppression system

Spare hand held fire extinguisher	1 x 7.7 or 9 kg (type ABC)
Manual or automatic system	Ansul, 6 nozzles (TS2-460)
Automatic system	Sandvik Eclipse™ (TS2-461)

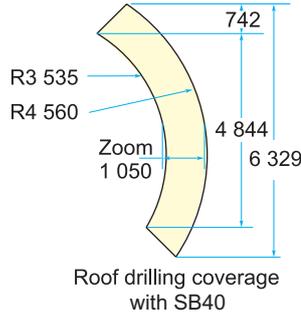
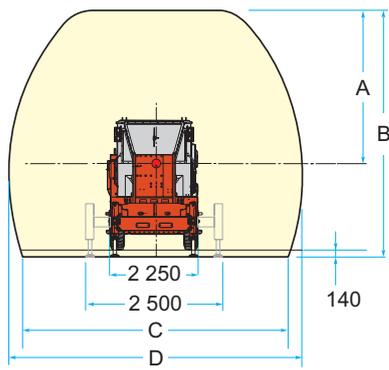
Carrier

Reduced tramming speed	3 rd gear lockout
*Diesel engine	QSB4.5, 119 kW, Tier 4i, Stage IIIB
*Foam filled tires	4 pcs
Fast filling and evacuation system	Wiggins (complete)
Wheel chocks and holders	2 Sets
Tramming camera	Rear and side
Rod rack	On carrier side

Extra items

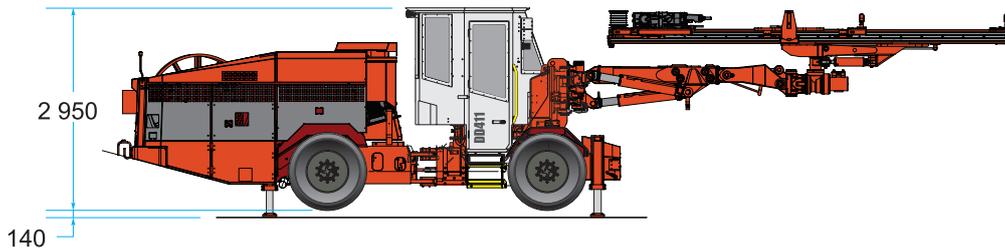
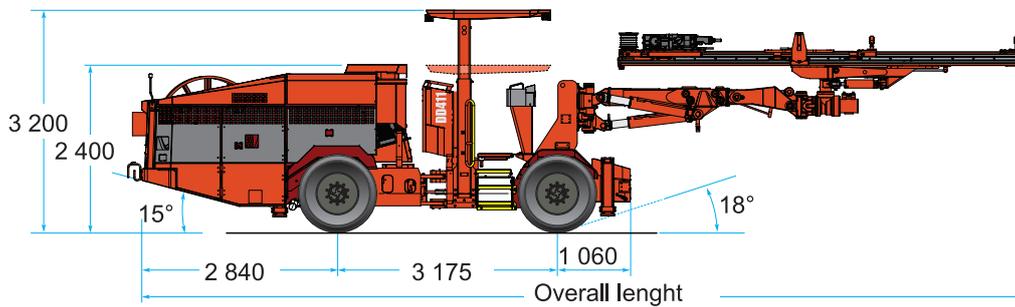
Spare rock drill	RD520, RDX5
Spare wheel assembly	12.00-20 or foam filled tire
Special tools for rock drill	Complete tool set (TS2-437) Field tool set (TS2-436)
Warranty extension	One year (excl. Kazakhstan)
Documentation	Extra paper, CATbase, Link one manuals
iSURE®	iSURE II Plus annual license (Advanced drill and blast design including round reports) iSURE III Premium annual license (MWD including Pull out analyses) LAM, USC, AUS, EUR package
Package: Country specific options	
*Package: Harsh water	Basic or advanced (Spec. TS2-049)
*Package: Rotary drilling	Specification TS2-195
*Package: Arctic	To operate in extremely temperature
Package: Anti-freezing	Block heater for engine, heater for hydraulic oil, Water circuit flushing with air, antifreeze adding in water circuit.

*) Replaces standard feature

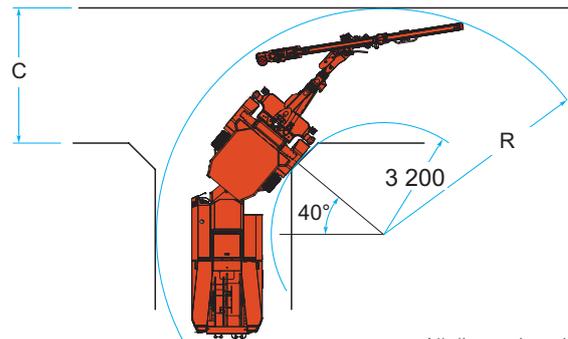


	A	B	C	D
DD411-40	3 990	6 125	6 540	7 210
DD411-60	4 340	6 475	6 500	8 370
DD411-90	5 750	8 000	10 335	10 800

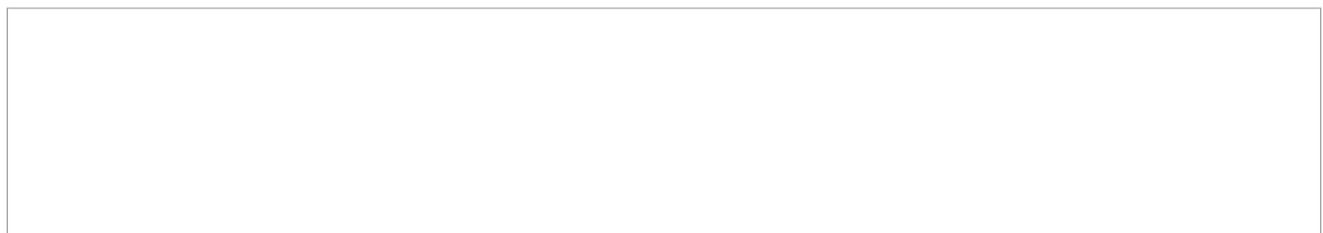
	TF512	TF514	TF516
Overall length (SB40)	12 600	12 800	13 250
Overall length (SB60)	12 730	12 930	13 380
Overall length (SB90)	14 050	14 250	14 700



Boom - Feed	Radius (R)	T-cross (C)
SB40 - TF500-12'	6 300 mm	3 750 mm
SB40 - TF500-14'	6 450 mm	3 850 mm
SB40 - TF500-16'	6 650 mm	4 100 mm
SB60 - TF500-10'	6 500 mm	3 900 mm
SB60 - TF500-12'	6 550 mm	3 950 mm
SB60 - TF500-14'	6 650 mm	4 050 mm
SB60 - TF500-16'	6 800 mm	4 200 mm
SB90 - TF500-16'	7 660 mm	5 010 mm



All dimensions in mm



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