



SANDVIK DS411 ROCK SUPPORT

TECHNICAL SPECIFICATION

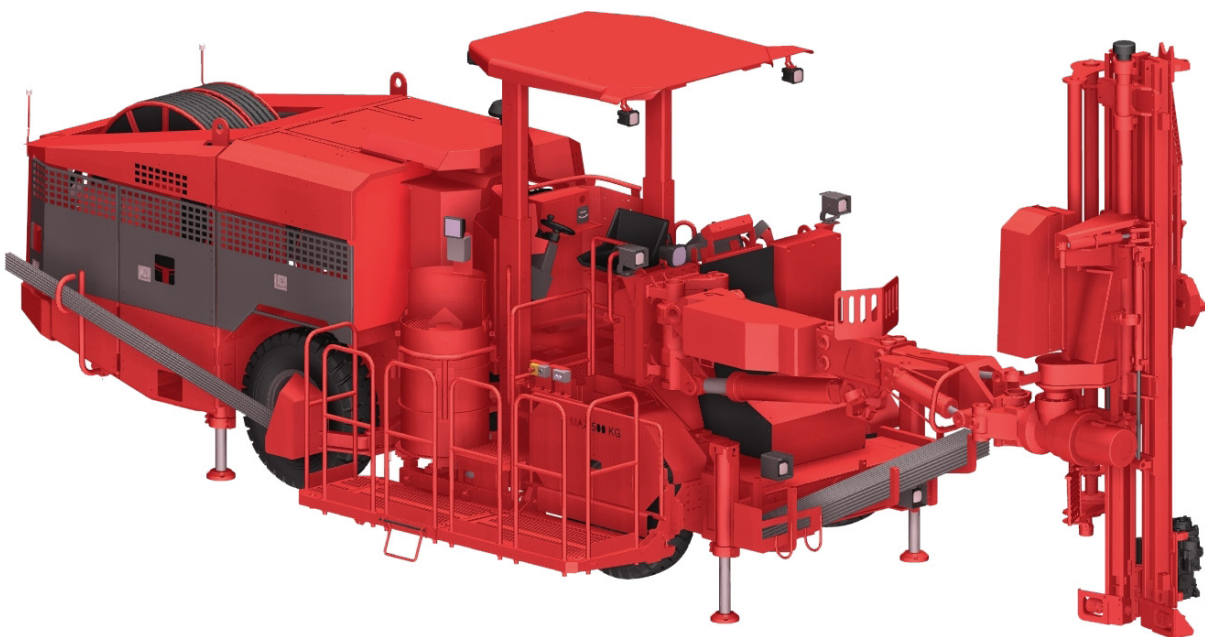
Sandvik DS411 is a rock reinforcement drill rig that installs all most common rockbolt types in combination with steel wire meshes when required. Provided with a strong and reliable boom, the TBR60, it can install from one carrier setup, several rows of rockbolts, from 1.5 m to 3 meters long.

The extremely short but powerful Sandvik RD314 rockdrill delivers the best ratio between rockbolt length and drift height. The rockbolting process is completely mechanized and controlled by a single operator from under a FOPS safety canopy.

As all the Sandvik drill rigs based on the NC7 carrier family, the Sandvik DS411 is designed for safety. For example, most of the daily and routine checks are done with both feet on ground.

KEY FEATURES

Hydraulic rock drill	Sandvik RD314
Bolting head	Sandvik BH
Boom	Sandvik TBR60
Bolt length	From 1.5 m to 3 m (5' to 10')
Turning width (T-section)	3,900 mm
Transport / bolting width	2,740 mm / 3,975 mm
Transport height	2,455 mm / 3,100 mm
Transport / bolting length	11,370 mm / 10,950 mm
Total weight	23,000 kg depending on options



HYDRAULIC ROCK DRILL

TECHNICAL SPECIFICATION TS2-137

Rock drill	Sandvik RD314
Percussion power	14 kW
Percussion pressure	Max. 160 bar
Percussion rate	110 Hz
Rotation speed	Max. 520 rpm (with OMS 100)
Rotation torque	505 Nm (with OMS 125)
Hole size (bolting)	33 - 43 mm
Shank adapter	45 mm / R32 female
Weight	115 kg
Length	1,024 mm
Profile height	95 mm
Shank lubrication device	Air / oil mist, SLU-1
Air consumption	150 - 250 l/min
Oil consumption	100 - 200 g/h

BOOM

TECHNICAL SPECIFICATION 8-5540

Boom type	Sandvik TBR60
Boom extension	1,200 mm
Boom weight, net	2,200 kg
Roll-over angle	358°

Options

- Harsh water cylinder rods.

BOLTING HEAD

TECHNICAL SPECIFICATION 8-5200

Bolting head type	Sandvik BH
Bolting head feed	KS140
Bolt carousel capacity	8 rockbolts
Bolt head length	Max. 4,142 mm (BH30)
Net weight	1,720 kg (with RD314)

Options

- Bolting head oiler. Recommended with P-system.
- Bolting alternatives. GCR, WI, S, BC, M, K.
- HE300 impactor when percussive bolt type e.g. Split Set.
- Rod retainer (PITO 9H). For temporary long hole drilling with R32 male shank.
- "In the hole" resin cartridges injection system (Spec. 8-610S)
- Cement dust collector. Above the mixer.

HYDRAULIC SYSTEM

Powerpack	HPP355 (55 kW)
Percussion pump	100 cc (variable)
Rotation pump	33 cc (gear)
Filtration size	20 micron (pressure) 12 micron (return)
Oil tank volume	200 liters
Tank filling	Electric pump
Oil cooler	Water cooled. Cooling capacity 1 x 30 kW

Options

- Biodegradable oils. Shell Naturelle HFE46 / HFE68.
- Vacuum pump for hydraulic oil.

CONTROL SYSTEM

Type	Sandvik TPC301 EW
Power control	Adjustable full power Adjustable collaring power
Anti-jamming control	Adjustable anti-jamming pressure
Rotation control	Adjustable rotation speed Reversible rotation
Flushing control	Water flushing flow and pressure control air-mist flushing, option
Returns automatics	Rock drill

Options

- Bolting instrumentation TMS D.

ELECTRIC SYSTEM

Total input power	70 kW
Main switch	MSE 10
IP classification	Spec. sheet TS2-132
Standard voltage	380 - 690 VAC (± 10%)
Starting method	Star delta starter 380 - 690 VAC Soft starter 480 - 575 VAC Direct on line (DOL) 1,000 VAC
Automatic cable reel	TCR3E with spooling system
Cable reel control (in / out)	Operator station
Remote control for reel(s)	At rear machine
Sealed AGM batteries	2 x 12 V, 95 Ah
Front working lights (combined working and driving)	6 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)
Manual search light	1 x 50 W LED (4,200 lm, 6,000 K)
Parking rear brake/park lights	2 x Red LED

Options

- Optional voltage. 1,000 VAC, 50 Hz.
- Electric cable rubber or PUR. Spec sheet TS2-121.
- Optional outlet. 3-phase outlet 380 - 690 VAC only.
- Dewatering pump outlet readiness (380 - 690 VAC).
- Cable plug holder for 1,000 VAC.
- Sealed AGM batteries.
- Battery jump start.
- Extra working lights. 2 x 50 W LED (4,200 lm, 6,000 K).
- Amber strobe light. LED (24 V).

FLUSHING SYSTEM

Flushing	Water
Water pump type	WBP1
Water pump capacity	50 l/min
Water pump inlet pressure	2 bar (Min.)
Flushing water pressure	10 - 15 bar
Air compressor	CTN10, 1 m³/min (7 bar)
Mine air connection	IP5 air cleaner

Options

- Hole cleaning with air. CTN16 air compressor 1.6 m³/min (7 bar).
- Water hose reel. THR2.5E with water hose 38 mm (1 ½"), 65 m.
- Water hose reel. THR2.5E with water hose 32 mm (1 ¼"), 100 m.

TRAMMING AND OPERATOR STATION

Tramming speed	16 km/h (Horizontal) 5 km/h (14%=1:7=8°)
Gradeability / inclination	Max. 15° / 5°
Safety canopy	FOPS (ISO 3449)
Operation	Standing drilling, seated tramming
Sound pressure level according to EN791	Operator station: 100 dB(A)
Seat	Ergonomic, adjustable for tramming including seat belt
Front screen protection bar	

Options

- Reduced tramming speed. 3rd gear lockout.
- Reversing camera at the rear and side of the machine.
- Boot washer.

CARRIER

Carrier	Sandvik NC7N
Carrier type	Wheel-mounted, frame steering
Frame steering	± 35°
Rear oscillation	± 10°
Ground clearance	420 mm
Diesel engine	MB OM904LA, 110 kW, Tier 3, Stage IIIA
Exhaust catalyzer + muffler	Standard
Transmission	Hydrodynamic, Spicer T20 000
Axles	Dana Spicer
Tires	12.00-20
Service brakes	Hydraulic wet disc brakes
Parking and emergency brakes	SAHR type, fail safewet disc brakes
Fuel tank	140 liters
Hydraulic jacks	TJ40 Vertical (front) TJ60 Vertical (rear)
Hand throttle	Standard

Options

- Foam-filled tires.
- Fast filling systems. Complete.
- Wheel chocks and holder (2 pieces).
- Automatic resin injection (ARI).
- Bolt storage front (Max. 2.4 m).
- Bolt storage right side.
- Rod rack for 4 rods.
- Utility boom SUB2A or SUB2iA (Spec. 4-3410).
- Screen handler on separated boom.
- LP cleaning system with reel. Max. 15 bar.
- HP cleaning system with reel. Max. 180 bar.
- Bolting module continuous washing system.
- Greasing unit with pump, reel and nozzle. Manual.
- Automatic greasing system. Booms and carrier.
- Handheld fire extinguisher. 1 x 7.7 or 9 kg Type ABC.
- Manual fire suppression system. 6 nozzles (incl.1 x extinguisher).
- Auto. fire suppression system. 6 nozzles (incl.1 x extinguisher).
- FS1000 fire suppression system (above 0°C).
- Access detector system.

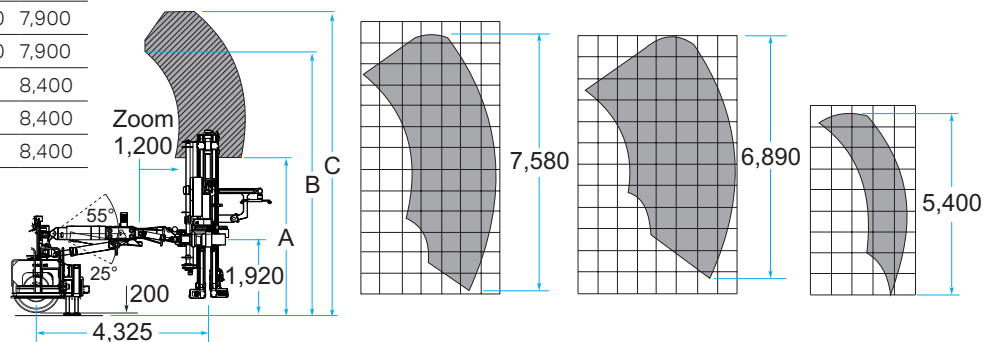
Packages

- Regional packages. USC, AUS, EUR.
- Harsh water packages. Basic or advanced (Spec. TS2-049).
- Anti-freezing package: Block heater for engine, heater for hydraulic oil, water circuit flushing with air, antifreeze adding in water circuit.

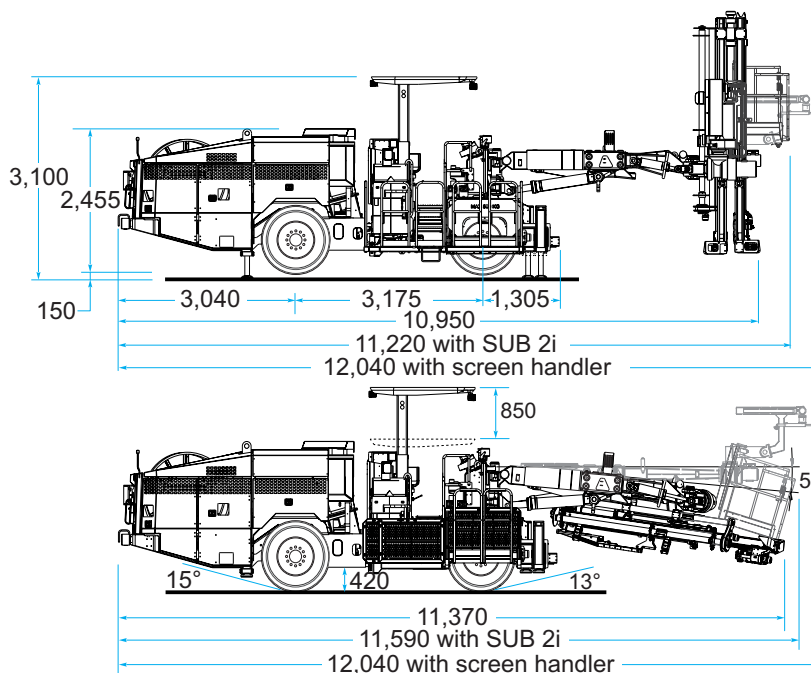
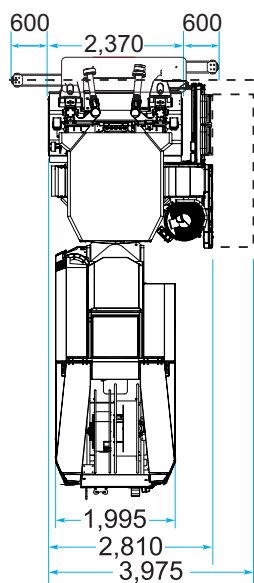
Extra items

- Ground fault and overcurrent protection (VYK).
- Spare rock drill.
- Spare wheel assembly. Standard or foam-filled.
- Special tools for rock drill.
- Documentation. Extra manuals.

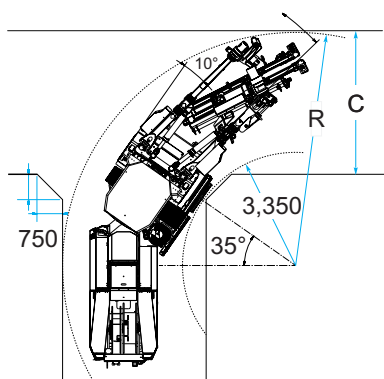
Bolting head	Bolt length (m)	A (mm)	B (mm)	C (mm)
BH15	1.2 - 1.5	2,700	6,600	7,900
BH18	1.2 - 1.8	3,100	6,600	7,900
BH22	1.5 - 2.2	3,600	6,600	7,900
BH24	1.5 - 2.4	3,800	7,100	8,400
BH27	1.5 - 2.7	4,000	7,100	8,400
BH30	1.5 - 3.0	4,300	7,100	8,400



All dimensions in mm



All dimensions in mm

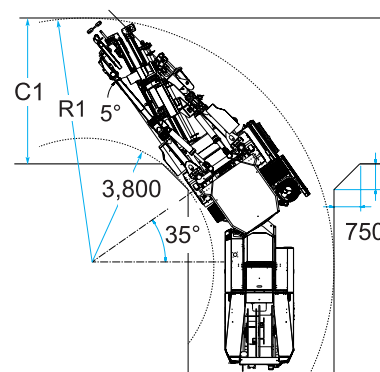


TURNING RIGHT

	External radius (R)	T-cross (C)
DS411	mm 6,600	4,000
DS411 with SUB2i	mm 7,600	5,000
DS411 with SH	mm 6,900	4,250

TURNING LEFT

	External radius (R1)	T-cross (C1)
DS411	mm 6,850	3,900
DS411 with SUB2i	mm 6,850	3,900
DS411 with SH	mm 7,250	4,250



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4. SANDVIK DS411