

DD422iE Development drill

Technical Specification





RD525
rock drills

Intelligent
drilling control

Robust and strong boom:
SB60 with hydraulic parallel hold
SB60i with instrumentation

Zero emissions underground development

Sandvik DD422iE is the mining industry's first highly-automatic development jumbo with an electric driveline system, engineered to meet the needs for improved safety, increased productivity and reduced emissions.

Sandvik DD422iE uses electric battery power instead of a diesel engine to eliminate emissions during tramming.

The drill is equipped with an electric driveline system including a battery package and electric motor for zero emissions while tramming helping the mines to reduce their overall emissions, their ventilation and fuel costs and creating a safer and healthier working environment.

Sandvik DD422iE will help you to achieve optimum tunnel profile and dimensions in your underground development.

Sandvik DD422iE performs precise, repeatable drilling procedures that can significantly reduce the amount of waste material produced, making your mining and development process more cost-efficient.

Key features

Coverage	60 m ² (10 270 x 6 590 mm)
Drift size class (H x W)	4 500 mm x 4 500 mm
Hydraulic rock drill	RD525
Drill feed	TF500, 12 - 20 ft
Boom	SB60
Automation package (option)	Gold, platinum
Onboard battery package	Lithium iron phosphate battery technology
Max. battery energy	121 kWh
Tramming distances	30 km (flat ground), 6.1 km (1:7 incline upwards)
Transport width	2 500 mm
Transport height	3 150 mm / 3 050 mm
Transport length	13 550 mm
Total weight	29 000 kg depending on options



Main benefits

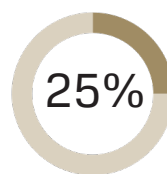
HIGH LEVEL AUTOMATION

Sandvik DD422i has standard features for automatic drilling and boom movements. Intelligent torque optimized drilling control system helps to minimize hole deviation during drilling, reduce jammings and maximize the tool life consistently.

SCALABLE AUTOMATION

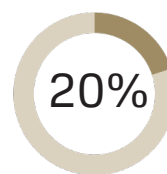
With scalable automation packages, Sandvik DD422iE offers a wide range of valuable features for automatic drilling:

- A light and compact teleremote control station enabling the drill to be operated remotely and allowing the operator to drill more holes during shift change, blasting and ventilations times.
- A patented semi-automatic drill bit changer: the bits are changed from a safe location, enhancing productivity and reducing the risk of personnel exposure to hazardous ground conditions.
- Our boom collision avoidance system ensures the reliability of automatic boom movements, by automatically re-routing the boom when a possible collision is detected.



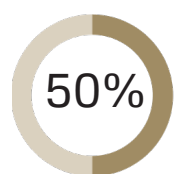
Reduced costs

Up to 25% reduction in total cost of consumables per meter drilled compared to the DD421



Improved performance

Up to 20%* improved drilling performance through active power compensation



Improved tramming distance

Up to 50%* more tramming distance with LFP battery



Optimized working environment

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



Increased performance through safest technology

LFP batteries are certified for underground mining applications for maximum safety. Extended tramming performance and shorter charging time are achieved.



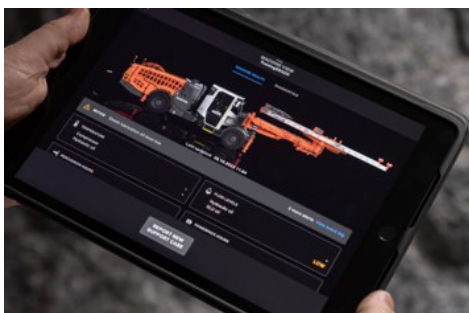
Dual controls (option)

This option allows true multipurpose usage of the drill, improving fleet optimization, versatility and performance. DD422iE can be used within multiple and different applications.



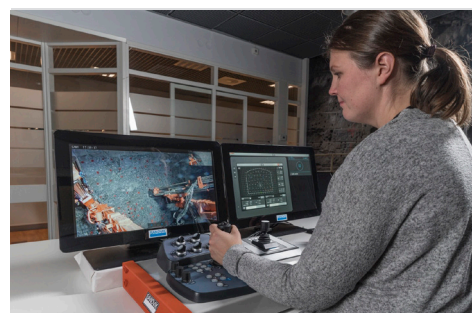
Digital Driller™

Through simulation, operators develop skills fully from basic boom movements and manual drilling to full automated drilling operations using various training scenarios.



Sandvik DrillConnect

Readiness for Sandvik DrillConnect mobile application for improved data management and enhanced maintenance, and My Sandvik digital services.



Teleremote drilling

Teleremote drilling allows a better utilisation of workforce and equipment and improved operator safety and performance.



Sandvik 365 Parts and Services

Proudly keeping you on track!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik DD422iE drill'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	RD525 (TS2-236)
Percussion power	25 kW
Percussion pressure	Max. 220 bar
Percussion rate	93 Hz
Stabilizer	Hydraulic
Rotation speed	Max. 280 rpm (with OMS125)
Rotation torque	625 Nm (with OMS125)
Hole size (bolting)	43 – 64 mm
Hole size (reaming)	76 – 127 mm
Recommended tools: 43 - 45 mm: 48 - 51 mm:	T38 – H35 – Alpha 340 T38 – H35 – Alpha 360 T38 – R39 – Alpha 360
Shank adapter	T38 (male)
Weight	225 kg

Fixed drilling feed

Type of feed	TF5i-12’ Standard	TF5i-14’ Optional	TF5i-16’ Optional	TF5i-18’ Optional	TF5i-20’ Optional
Feed force (max.)	25 kN	25 kN	25 kN	25 kN	25 kN
Feed extension	1 650 mm	1 650 mm	1 650 mm	1 650 mm	1 650 mm
Total length	5 355 mm	5 965 mm	6 575 mm	7 185 mm	7 710 mm
Hole length	3 440 mm	4 050 mm	4 660 mm	5 270 mm	5 880 mm
Rod length	3 700 mm	4 305 mm	4 915 mm	5 525 mm	6 135 mm
Net weight	500 kg	530 kg	560 kg	590 kg	620 kg

Telescopic drilling feed (options)

Type of feed	TFX6/12	TFX8/14	TFX10/16
Feed force (max.)	25 kN	25 kN	25 kN
Feed extension	1 650 mm	1 650 mm	1 650 mm
Total length	3 560 / 5 390 mm	4 170 / 6 000 mm	4 780 / 6 610 mm
Hole length	1 610 / 3 440 mm	2 220 / 4 050 mm	2 830 / 4 660 mm
Rod length	1 830 / 3 700 mm	2 440 / 4 305 mm	3 050 / 4 915 mm
Net weight	640 kg	680 kg	730 kg

Boom

Type of boom	SB60 (TS2-264)
Parallel coverage	54 m²
Parallelism	Hydraulic / electric
Boom extension	1 200 mm
Bolt hole drilling	Yes
Roll-over angle	358 °
Boom weight, net	2 250 kg

Hydraulic system

Powerpack	1 x 160 kW (tramming and drilling)
Percussion and feed pump	110 cc
Rotation pump	60 cc
HVAC (Heating, Ventilation, and air conditioning) pump	26 cc
Filtration size (pressure / return)	20 µ / 10 µ
Oil tank volume	270 liters
Oil tank filling pump	Electric
Cooler for hydraulic oil	OW30 oil-to-water (2 x 30 kW)

Drilling control system

Type of control system	SICA
Drilling control modes	Torque optimised/ feed percussion / manual
Upgradeable automation levels	Gold, Platinum
Comprehensive diagnostic system	
Electronic joystick controls & GUI	
Advance carrier functions	
Display of feed angles, drilling depth & penetration rate	
Presetable angle & depth indication for reference hole	
Counter & recommended change internals for bits & tools	
15" full color touch screen	
Cable kit for spare part programming	
Safety lock for movement prevention	2 switches
OptiMine®	With configuration readiness

Electric system

Multivoltage	Compliance from 380 to 1 000 V, 50 and 60Hz
Total installed power	205 kW
Main switch gear	MSE20
IP classification	Specification TS2-132
Starting method	Inverter controlled soft starting Typical inrush current peak less than 1 kA (duration less than 20ms)
Automatic cable reel	TCR4CD with spooling system
Cable reel control	Operator station and remote control at rear machine)
Front lights	6 x 50 W LED (24V) >125lx, 20 000 lm; 6 000 k
Rear lights	2 x 50 W LED (24V) and 2 x 17 W LED (24V) 8 000 lm; 6 000 k
Parking rear brake /park lights	2 x Red LED
Stair and service lights	LED (24 V)
Amber flashing light	LED (24 V)
Electric quality monitoring	Voltage, Amperage, Power, Pf Energy, Phase-sequence
Onboard battery package	2 x Lithium iron phosphate battery 121 kWh max. energy
Intelligent power management system	Battery charging during drilling, Presetable power compensation available from the batteries during peak loads in drilling
Protection	MSE IP66/Nema4x, junction boxes ≥ IP68

Air and water flushing

Flushing of holes	By Water
Water booster pump type	WBP2 HP
Water pump capacity	185 l/min
Water pump inlet pressure	2 bar (Min.)
Flushing water pressure	10 - 15 bar
Shank lubrication device	SLU2 (air / oil mist)
Air compressor	CTN10 (1.0 m³/min at 7 bar)
Compressed air outlet	Quick coupling
Oil consumption	150 - 250 g/h
Air consumption	250 - 350 l/min

Technical Specification

Operator's safety cabin

Safety cabin certification	FOPS / ROPS (ISO 3449 / 3471) with safety grill
Operation	Seated tramming Standing and seated drilling
Sound pressure level	According to EN16228, ISO1120. Operator station: 69 db(A)
Vibration level	According to EN16228, ISO2631-1 ISO5349-1, ISO5349-2
Seat	Fully adjustable seat (tramming and drilling)
Optimized dust level control via air circulation	
Air conditioning	EU6/7 filtering capacity
Cabin heating	During tramming and drilling
Electricity outlets	1 x 12 V and MP3 player readiness
Stairs and indoors lights	LED
Audio player	MP3 player with radio and loudspeaker
Boot washer	At each cabin entrance
Safety laminated acoustic windows	

Carrier

Type of carrier	C400E (frame-steered)
Carrier articulation	± 40°
Rear axle oscillation	± 8°
Ground clearance	330 mm
Transmission	Inverter controlled electric motor with mechanical link to axles
Axles	Dana Spicer
Tires	14.00–24 PR28
Brakes	SAHR type, fail-safe wet disc brakes
Tramming speed	10 km/h (flat ground) 6.0 km/h (1:7 incline upwards)
Tramming distances	30 km (flat ground), 6.1 km (1:7 incline upwards)
Gradeability / sideways tilt	Max.15° / 5° (according to EN 16228-2)
Hydraulic jacks	2 x SJ500 (front, 2 x SJ600 (rear)
Wheel chocks and holders	2 Sets
Centralized greasing points	Specification TS2-463
Manual greasing system	Pump, reel and nozzle (TS2-463)
Hand held fire extinguisher	1 x 7.7 or 9 kg (type ABC)
Tramming alarm	Standard
Toolboxes and first aid kit	
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

Automation package, Gold level (Option)

SB60i boom with electronic parallel holding
Drill plan visualization onboard
Display of drill bit location vs. given drill plan
iSURE® software for drill & blast process management
Drill rig suitable with various navigation methods
Advanced MWD data collection with analyses tool (iSure®)
Sandvik DrillConnect mobile application : Connectivity through Knowledge box™ for easy data transfer to and from the rig

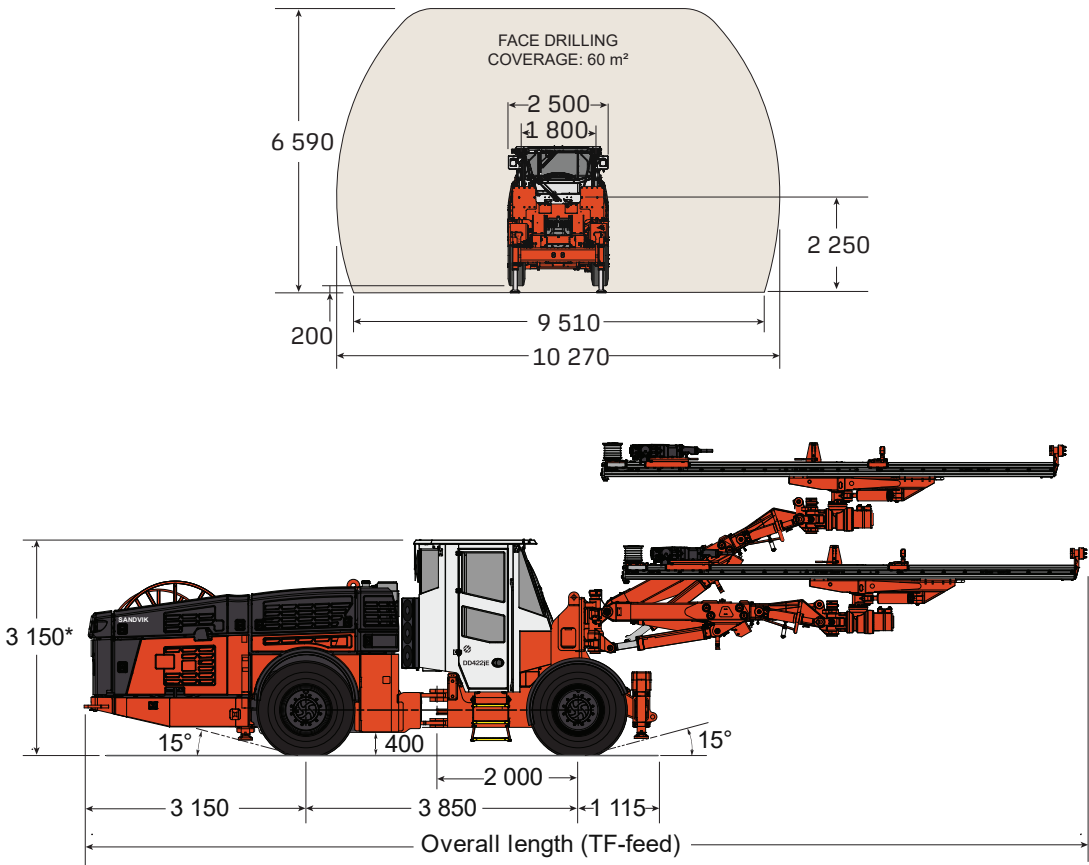
Automation package, Platinum level (Option)

Automation Gold package content
Hole end correction from different start point
Semi-automatic boom movements
Automatic boom movements (full face automation)
Boom collision avoidance system (separate option)

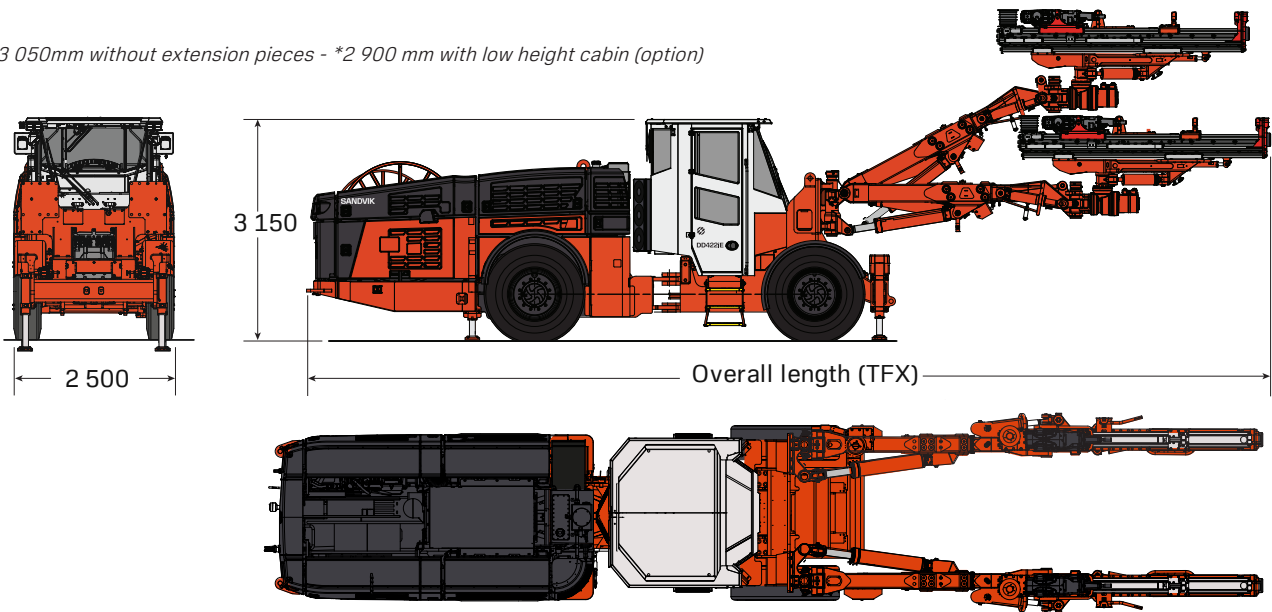
Optional features and packages

Rock drill *Type of rock drill Power extractor Stabilizer diagnostics indicator		RD520, RDX5 (OMS80) with HPP555 kW for RD525, RD520, RDX5 for RD520 or RD525
Feed Type of feed Rod retainer		14', 16', 18', 20', TFX6/12, 8/14, 10/16 TRR1 incl. safety wire, add 35 mm length of the feed TRS included TRR1 with safety wire 12 / 6 / 4 x bits (45 / 48 / 51mm bits) + 2 x reaming bits incl. rod retainer
Hydraulic system Vacuum pump By pass oil filter		For hydraulic system
Drilling control system Boom collision avoidance system Reversed bolt joint Data transfert Access detector and protector		WLAN including remote GUI view Mandatory in Europe (TS2-211)
Air and water system Air mist flushing kit *End of hole air flushing Water hose reel with water hose		2 x OA40, IP5 air cleaner and flow control Including CT28 air compressor THR2.5E with 38 mm (1 ½"), 65 m
Cleaning system HP system with reel		Up to 180 bar (TS2-343)
Greasing systems Automatic system		Lincoln (complete)
Electric system *Electric cables Ground fault and overcurrent protection Dewatering pump outlet		Specification TS2-121 VYK 8kW, site voltage 380 - 690 V, 50/60Hz 8kW, 400 V, 50/60Hz with transformer 2 pcs
Remote controlled spot lights Indicator lights Earth continuity control		For jacks up / down 1 wire pilot circuit with remote reset / disconnect
Auxiliary outlet Battery jump start Indicator light for boom movement prevention switch status		1 x 110 V or 1 x 230 V, 16 A Optional 2 x on both sides, 1 x inside cabin (green or red depending status)
Operator's safety cabin *Low height cabin *Low height unit		Height 2 900 mm with safety grill Height 3 050 mm (incl. tram camera) (std cabin w/o 100 mm ex. pieces) 400i serie Cabin
Safety grill lifting mechanism Tramming camera		Rear and side
Fire suppression system Spare hand held fire extinguisher Manual or automatic system		1 x 7.7 or 9 kg (type ABC) Ansul, 6 nozzles (TS2-460)
Carrier *Foam filled tires Fast filling system Rod rack Lithium iron phosphate battery (2 pcs)		4 pcs Complete On carrier side (Max. 400 kg) Rental
Extra items Spare rock drill Spare wheel assembly Warranty extension Special tools for rock drill Spare batteries Documentation iSURE®		RD525, RD520, RDX5 14.00-24 PR28 or foam filled tire One year (excl. Kazakhstan) Field tool set, complete tool set 2 x LFP battery (purchased or rental) Extra, Catbase, Link one manuals iSURE II Plus annual license (Advanced drill and blast design including reports) iSURE III Premium annual license (MWD including pull out analyses iSURE IV Pro annual license (Tunnel development KPI's)
Package: Dual controls Packages: Automation Packages:Extreme environment Package:Teleremote drilling		See below Gold, Platinum Specification TS2-166 Specification TS2-422
*) <i>Replaces standard feature</i>		

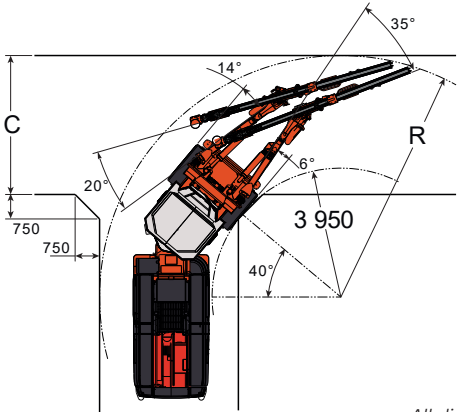
Technical drawings



*3 050mm without extension pieces - *2 900 mm with low height cabin (option)

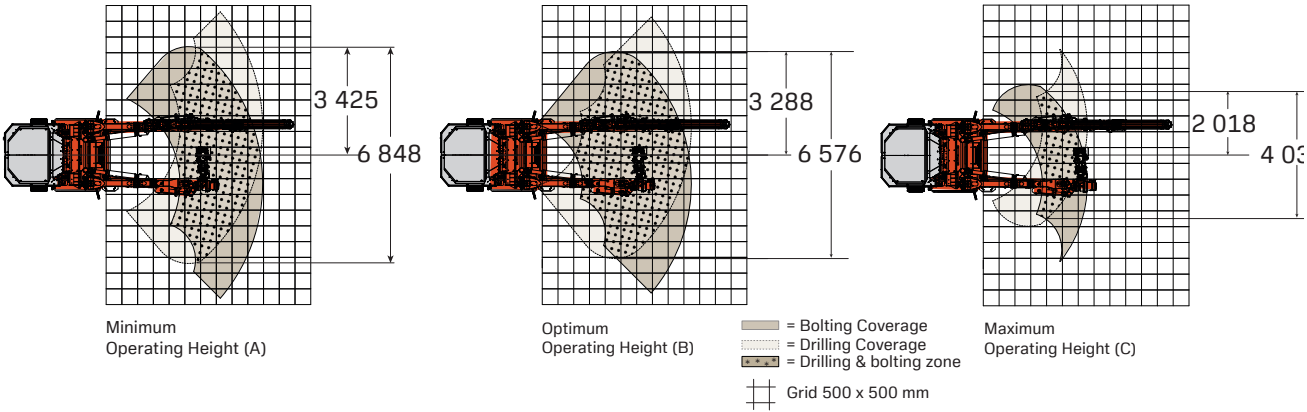
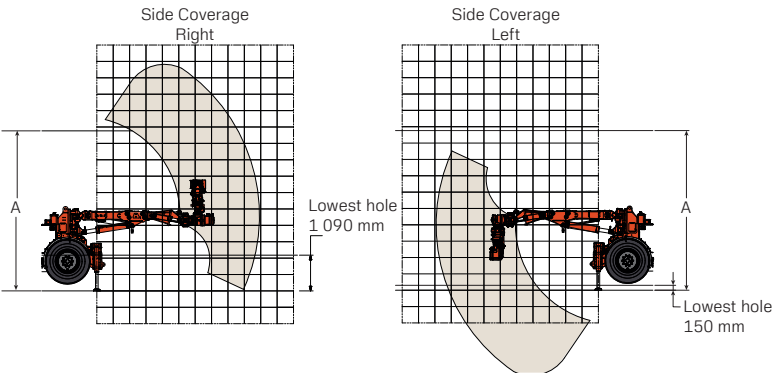
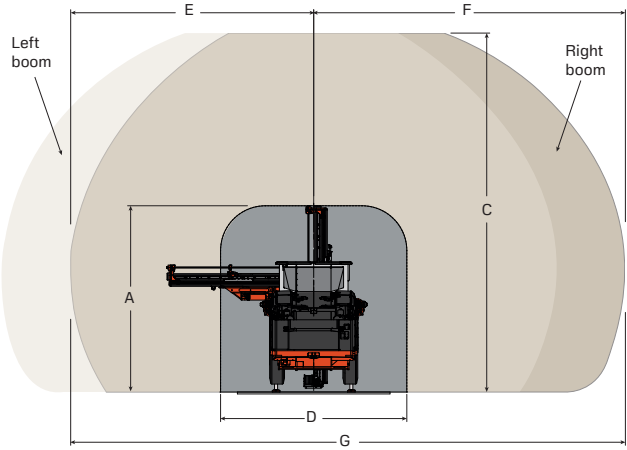
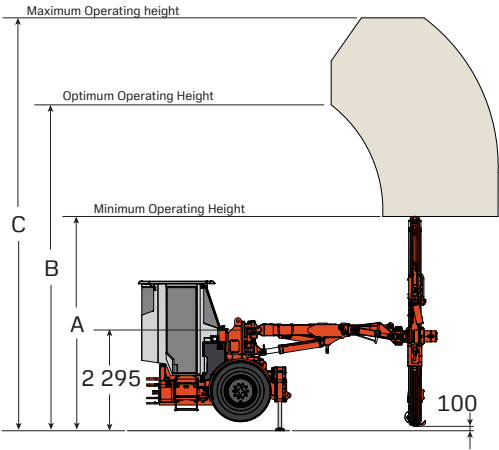


Type of feed	Radius (R)	T-cross (C)	Overall lenght	Overall lenght (with TRR1)
TFi500-12'	7 000 mm	3 970 mm	13 550 mm	13 585 mm
TFi500-14'	7 150 mm	4 120 mm	13 750 mm	13 785 mm
TFi500-16'	7 400 mm	4 300 mm	14 200 mm	14 235 mm
TFi500-18'	7 550 mm	4 350 mm	14 950 mm	14 985 mm
TFi500-20'	8 300 mm	5 150 mm	15 600 mm	15 635 mm
TFX6/12	6 850 mm	3 740 mm	13 450 mm	13 450 mm
TFX8/14	6 900 mm	3 790 mm	13 600 mm	13 600 mm
TFX10/16	7 000 mm	3 890 mm	13 800 mm	13 800 mm



All dimensions in mm

Technical drawings



Drilling module	Minimum operating height (A)	Optimum operating height (B)	Maximum operating height (C)	Minimum operating width (D)	Left maximum operating width (E)	Right maximum operating width (F)	Maximum width (G)
TF500-12'	5 435 mm	7 205 mm	9 835 mm	5 435 mm	6 010 mm	7 810 mm	13 820 mm
TF500-14'	6 045 mm	7 425 mm	10 055 mm	6 045 mm	6 230 mm	8 030 mm	14 260 mm
TF500-16'	6 655 mm	7 865 mm	10 495 mm	6 655 mm	6 670 mm	8 475 mm	15 145 mm
TF500-18'	7 265 mm	8 610 mm	11 240 mm	7 265 mm	7 415 mm	9 215 mm	16 630 mm
TFX6/12	4 200 mm	6 955 mm	8 435 mm	4 200 mm	5 760 mm	7 560 mm	13 320 mm
TFX8/14'	4 275 mm	7 030 mm	9 010 mm	4 275 mm	5 835 mm	7 635 mm	13 470 mm
TFX10/16'	4 885 mm	7 640 mm	9 620 mm	4 885 mm	6 445 mm	8 245 mm	14 690 mm

Dual controls package

Dual controls for multipurpose usage

Dual controls for multipurpose usage Sandvik DD422i with Dual Controls option allows true multipurpose usage of the drill.

A single operator can “bolt and bore” with one machine, replacing the traditional need for two machines – a “boring only” jumbo and a platform or mechanized bolter. The dual operator controls within the cabin are designed to support the multiple applications this unit performs.



Sandvik Dual drilling controls package designed for various multi-task operations combines the high level of versatility, high robustness and the selected features of the intelligent control system to the drill.

The package consists of two ergonomically designed drilling control panels with joysticks and touch screen display allowing true multipurpose usage of the equipment in underground mine and tunneling development. Torque optimized drilling control system helps to minimize hole deviation during drilling, reduce jammings, and maximize the tool life and penetration rate.

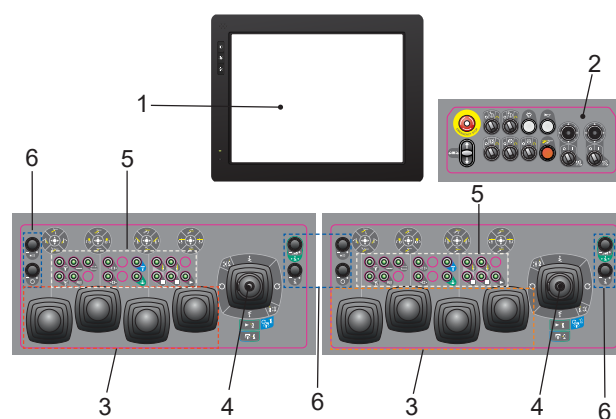
Sandvik Dual drilling controls package helps the boom control and bolting with hydraulic parallel hold and adjustable bolting recipes. Booms without instrumentation and electrics ensures robust operation in the toughest working environment.

The package can be selected as an option for both DD422i and DD422iE development drills.

Contents

SB60 boom with hydraulic parallel holding

SICA platform with THC561 look control panel for multitask-operations



Main functions

1. 15" Touch screen display for diagnostics and drilling information

2. Auxillary control panel

3. Joysticks for boom movements

4. Joysticks for drilling controls

5. Other functions:

- Mode selection: Drilling / Bolting
- Boom selection: 1 / 2
- Water and Air ON/OFF
- Start / Stop of one hole automation
- Controls for retainer (Option)
- Telescopic feed extension control
- Rattling

6. Fine adjustments (feed, percussion, rotation and flushing flow)

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