

DD422i Development drill

Technical Specification





Intelligence the way to the future

Sandvik DD422i is an intelligent development drill providing a high level of performance for underground mine development and small scale tunneling, including comprehensive drilling and ground support features.

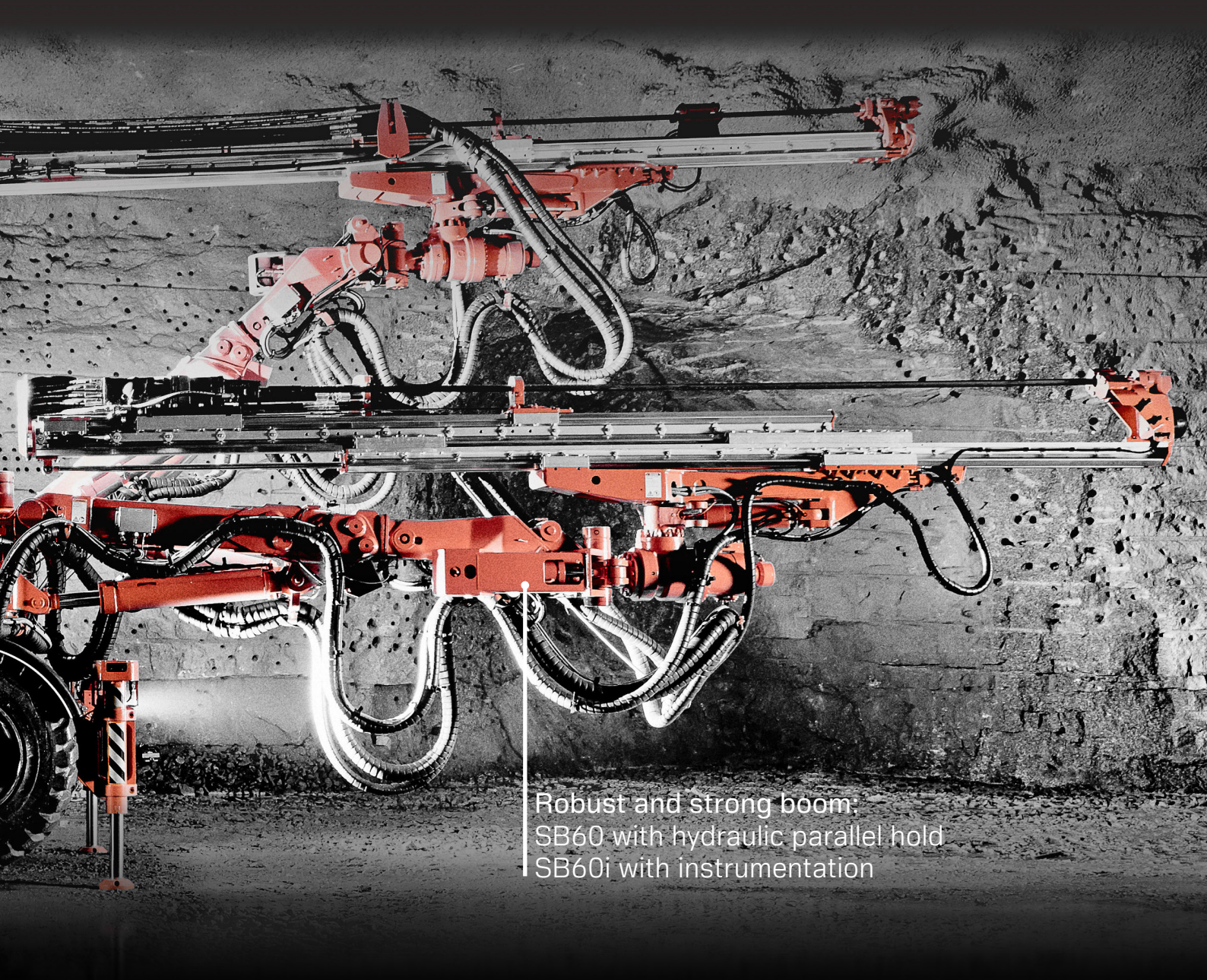
It is equipped with an intelligent torque optimized drilling control system which helps to minimize hole deviation during drilling, reduce jammings, and maximize the tool life and penetration rate.

Sandvik DD422i is available with scalable automation options, from hydraulic boom parallel hold without instrumentation, up to the tele-remotely controlled equipment with drill bit changers and fully automated drilling.

Comprehensive drill planning, reporting, and analyzing tools help to achieve high quality results in drilling and blasting precision for maximized pull-out per blast.

Key features

Coverage	60 m ² (10 270 x 6 590 mm)
Hydraulic rock drill	RD525
Drill feed	TF500, 12 - 20 ft
Boom	SB60 / SB60i
Automation package (option)	Silver, gold, platinum
Transport width	2 310 mm
Transport height	3 150 mm / 3 050 mm
Transport length	13 250 mm
Total weight	26 000 kg depending on options



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

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 DD422i 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.
- The boom collision avoidance system ensures the reliability of automatic boom movements, by automatically re-routing the boom when a possible collision is detected.

25%

Reduced costs

Up to 25%* reduction in total cost of consumables per meter drilled**

** compared to the DD421

15%

Improved performance

Up to 15%* increase in gross penetration rate**

50%

Increased accuracy

Up to 50%* time reduction in ground support preparation



Optimized working environment

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



TFX telescopic feed (Option)

TFX telescopic feeds for multipurpose development drilling with Sandvik DD422i. A versatile feed for face drilling, bolt hole drilling, bolt installation and cross cuttings in a limited space where both long and short rods have to be used.



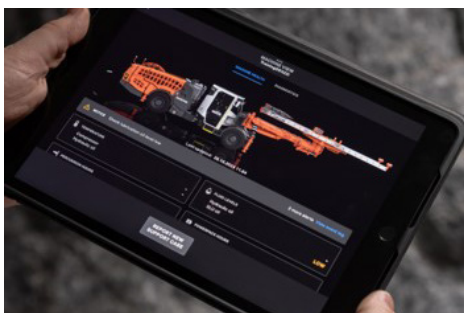
Dual controls (option)

This option allows true multipurpose usage of the drill, improving fleet optimization, versatility and performance. DD422i 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 DD422i 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	HPP575 (2 x 75 kW)
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	1 x Plate oil-to-water coolers

Drilling control system

Type of control system	SICA
Drilling control modes	Torque optimised/feed percussion/manual
Comprehensive diagnostic system	
Electronic joystick controls	
Advance carrier functions	
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	380 – 1 000 V (±10%)
Total installed power	170 - 200 kW
Main switch gear	MSE20
IP classification	Specification TS2-132
Starting method	Direct on line 380 V - 1 000 V
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
Motor protection	Intelligent control with power maximization
Extra low voltage supply	Continuous 80 A (27 VDC) with battery back-up and management

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

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	

Technical Specification

Carrier

Type of carrier	C400D (frame-steered)
Carrier articulation	± 40°
Rear axle oscillation	± 8°
Ground clearance	330 mm
Diesel engine	QSB4.5, 127 kW, Tier 3, Stage IIIA
Transmission	Hydrostatic
Axles	Dana Spicer
Tires	14.00–24 PR28
Brakes	SAHR type, fail-safe wet disc brakes
Tramming speed	12 km/h (limited)
Gradeability / sideways tilt	Max.15° / 5° (according to EN 16228-2)
Fuel tank	150 liters
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	Unit with pump, reel and nozzle
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, Silver level (Option)

Basic angle & drilling depth measurement
Reference hole & penetration rate information
Advanced boom manipulator mode
Counters for drilling consumables

Automation package, Gold level (Option)

Automation Silver package content
SB60i boom with electronic parallel holding
Drill plan visualization onboard
Display of drill bit location vs. given drill plan
iSURE® Basic license
Drill rig suitable with various navigation methods
Advanced MWD data collection with reporting and analyses tool (requires iSURE® Complete)
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)

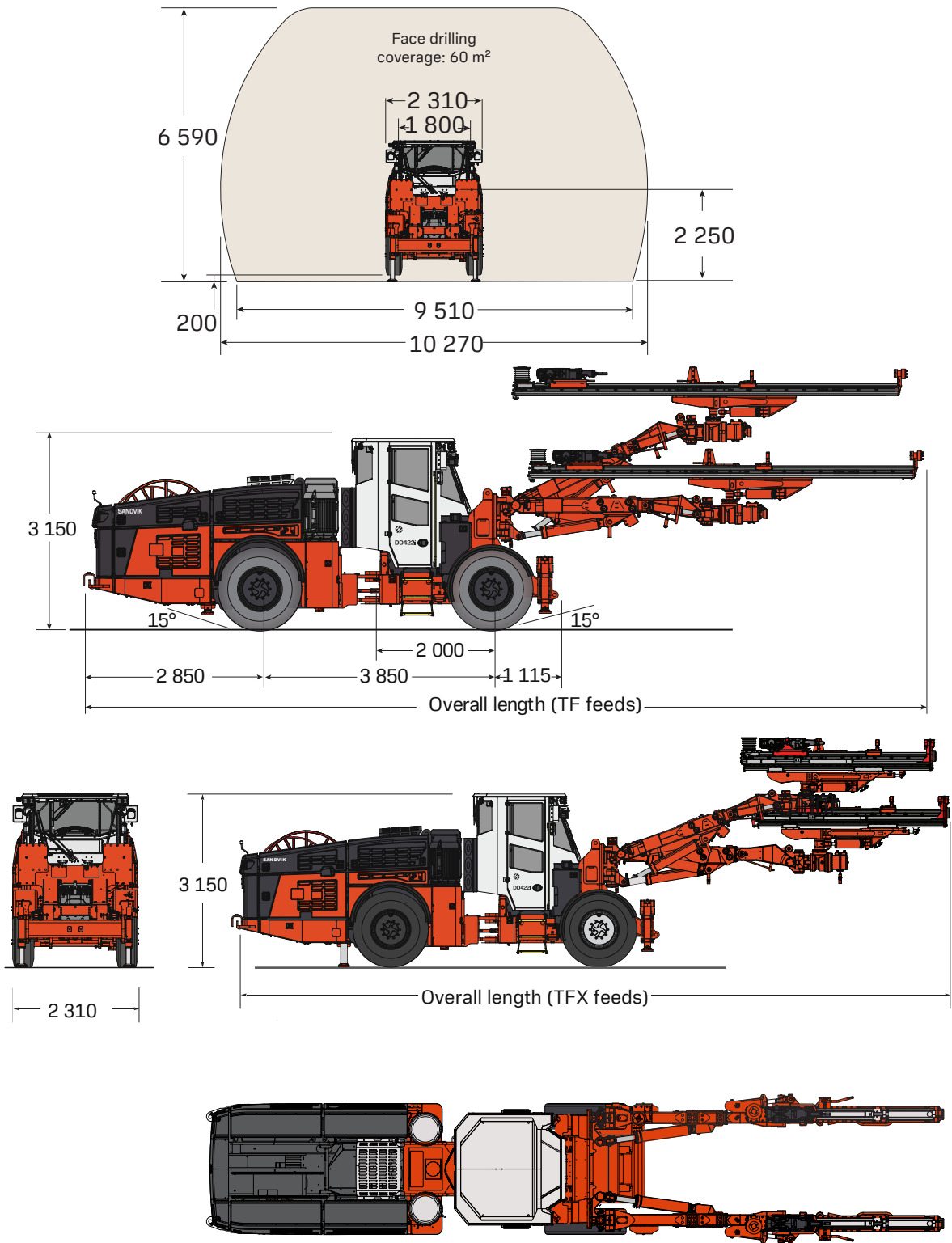
Optional features and packages

Rock drill	
*Type of rock drill	RD520, RDX5 (OMS80) with HPP555 kW
Power extractor	for RD525, RD520, RDX5
Stabilizer diagnostics indicator	for RD520 or RD525
Feed	
Type of feed	14', 16', 18', 20', TFX6/12, 8/14, 10/16
Rod retainer	TRR1 incl. safety wire, add 35 mm length of the feed
Two rods system	TRS included TRR1 with safety wire
Drill bit changer	12 x std bits (45 / 48 / 51mm bits) + 2 reaming bits incl. SCR rod retainer

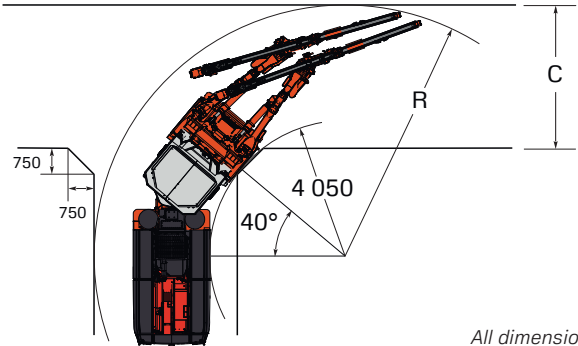
Optional features and packages

Hydraulic system	
*Powerpack	HPP555 (2x55 kW) with RDX5, RD520
Vacuum pump	For hydraulic system
By pass oil filter	
Drilling control system	
Boom collision avoidance system	
Reversed bolt joint	
Data transfert	WLAN including remote GUI view
Access detector and protector	Mandatory in Europe (TS2-211)
Air and water system	
Air mist flushing kit	2 x OA40, 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
Cleaning system	
HP system with reel	Up to 180 bar (TS2-343)
Greasing systems	
Automatic system	Lincoln (complete)
Electric system	
*Optional voltage	1 000 V (50/60 Hz) with DOL starter
*Electric cables	Specification TS2-121
Ground fault and overcurrent protection	VYK
Dewatering pump outlet	8kW, site voltage 380 - 690 V, 50/60Hz
	8kW, 400 V, 50/60Hz with transformer
	380 – 440 V, 690 V 50 Hz
	380 – 1 000 V, 50 or 60 Hz
Multivoltage basic	
Multivoltage pro	
Electric current draw reducer unit	
Remote controlled spot lights	2 pcs
Indicator lights	For jacks up / down
Earth continuity control	1 wire pilot circuit with remote reset / disconnect
Auxiliary outlet	1 x 110 V or 1 x 230 V, 16 A
Battery jump start	Optional
Indicator light for boom movement prevention switch status	2 x on both sides, 1 x inside cabin (green or red depending status)
Cable plug holder	for 1 000 V electric system
Operator's safety cabin	
*Low height cabin	Height 2 900 mm with safety grill
*Low height unit	Height 3 050 mm (incl. tram camera) (std cabin w/o 100 mm ex. pieces)
Safety grill lifting mechanism	400i serie Cabin
Tramming camera	Rear and side
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	
*Diesel engine	B4.5, 121 kW, Tier 4F, Stage V
	F3.8, 129 kW China 4
*Foam filled tires	4 pcs
Fast filling system	Complete
Rod rack	On carrier side (Max. 400 kg)
Extra items	
Spare rock drill	RD525, RD520, RDX5
Spare wheel assembly	14.00-24 PR28 or foam filled tire
Warranty extension	One year (excl. Kazakhstan)
Special tools for rock drill	Field tool set, complete tool set
Documentation	Extra, Catbase, Link one manuals
iSURE®	Complete for one year
iSURE® Geo	ProStart or Perpetual (incl. iSURE® Complete)
Package: Dual controls	See below
Packages: Automation	Silver, Gold, Platinum
Packages:Extreme environment	Specification TS2-166
Package:Teleremote drilling	Specification TS2-422
*) Replaces standard feature	

Technical drawings

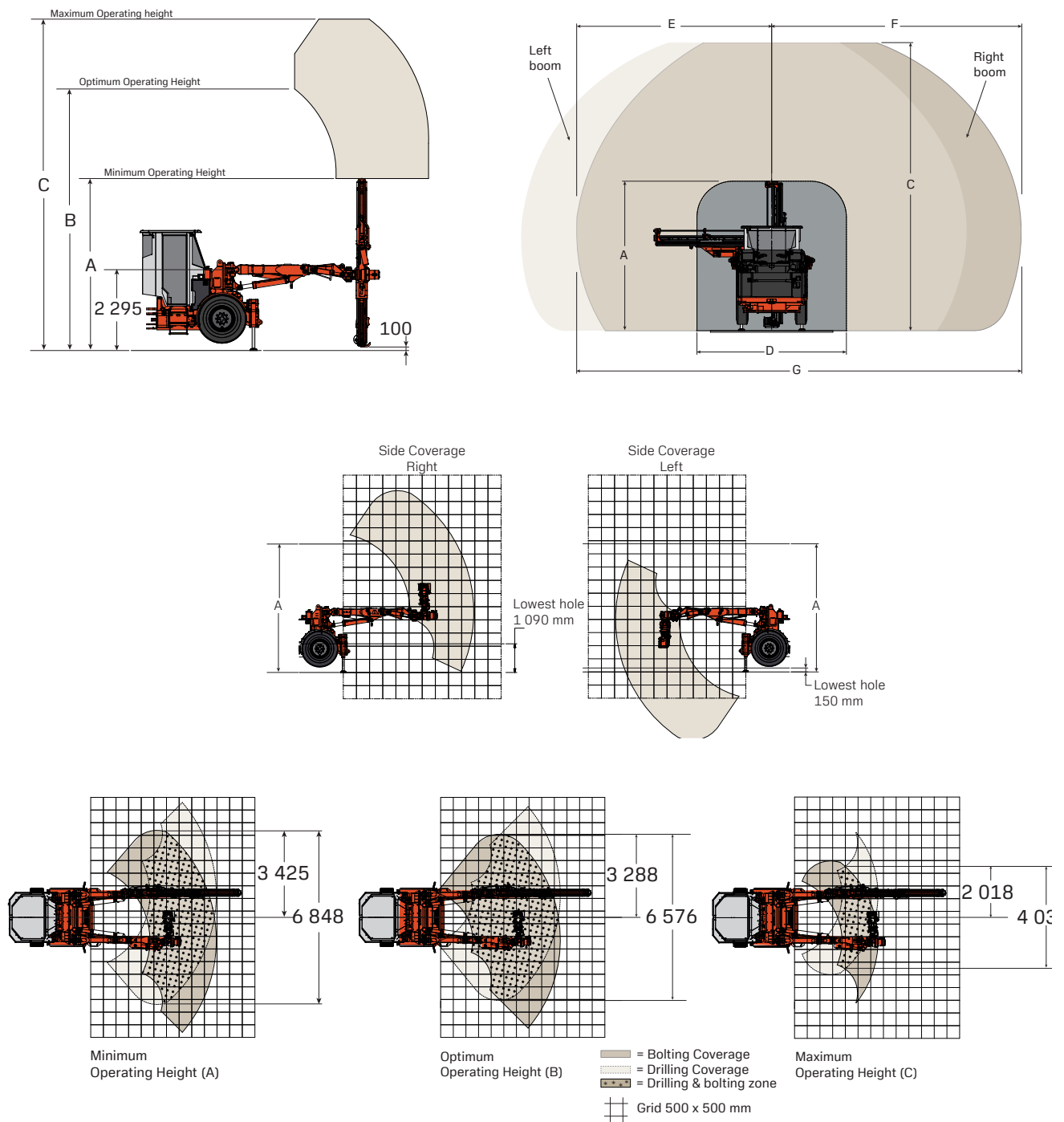


Type of feed	Radius (R)	T-cross (C)	Overall length	Overall length (with TRR1)
TFi500-12'	7 000 mm	3 870 mm	13 250 mm	13 285 mm
TFi500-14'	7 150 mm	4 020 mm	13 450 mm	13 485 mm
TFi500-16'	7 400 mm	4 200 mm	13 900 mm	13 935 mm
TFi500-18'	7 550 mm	4 250 mm	14 650 mm	14 685 mm
TFi500-20'	8 300 mm	5 050 mm	15 300 mm	15 335 mm
TFX6/12	6 850 mm	3 640 mm	13 150 mm	13 150 mm
TFX8/14	6 900 mm	3 690 mm	13 300 mm	13 300 mm
TFX10/16	7 000 mm	3 790 mm	13 500 mm	13 500 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.

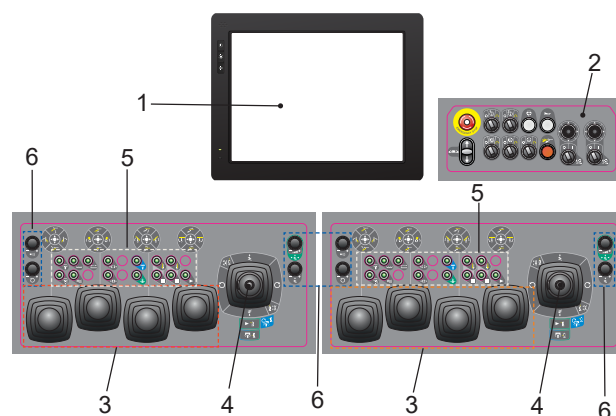
Sandvik Dual drilling controls package helps the boom control and bolting with hydraulic parallel hold and adjustable bolting recipes. Booms without instrumentation and electrics ensures robust operation in the toughest working environment.

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. 12" 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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