



# DD422iE DEVELOPMENT DRILL



ROCKTECHNOLOGY.SANDVIK



# ZERO EMISSIONS UNDERGROUND DEVELOPMENT

Sandvik DD422iE is the mining industry's first highly-automatic development jumbo with an electric driveline system, engineered to meet your 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. Thanks to its revolutionary electric driveline system, our latest highly-automatic mining jumbo consumes no fuel and generates less heat and noise than conventional drivelines. The result is safer, healthier and more productive development drilling in your mine.

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.



STIFF SQUARE SHAPE BOOM

- SB60 with hydraulic parallel hold
- SB60i with instrumentation

RD525 ROCK DRILLS



# MAIN BENEFITS

## DUAL CONTROLS FOR MULTIPURPOSE USAGE

Sandvik DD422iE with Dual Controls option allows true multipurpose usage of the drill.

Booms with hydraulic parallel hold without instrumentation, combined with two THC561-look drilling control panels, enables fast multipurpose operations for face drilling and ground support using a single drill.

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

**REDUCED COSTS**

**IMPROVED DRILLING**

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

Up to **100%** emissions compared to conventional diesel drills

**REDUCED EMISSIONS**

## 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.



INTELLIGENT  
CONTROLS SYSTEMS

ERGONOMIC AND  
COMFORTABLE CABIN

FOUR BATTERIES  
ELECTRIC DRIVEN



## 100 kWh ONBOARD BATTERIES



Sandvik DD422iE is equipped with onboard battery package for the tramming. With the intelligent power management system patented by Sandvik the charging of the batteries can be done during normal drilling cycle to ensure maximum tramming energy available all the time.



## TFX TELESCOPIC FEED (OPTION)



TFX telescopic feeds for multipurpose development drilling with Sandvik DD422iE. 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. DD422iE can be used within multiple and different applications.



## SANDVIK 365 PARTS & 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
Impact frequency	93 Hz
Stabilizer	Hydraulic
Rotation speed	Max. 280 rpm (with OMS125)
Rotation torque	625 Nm (with OMS125)
Hole size	43 – 64 mm
Hole size (reaming)	76 – 127 mm
Recommended rod	T38–H35–R32 T38–R39–R35
Shank adapter	T38
Weight	225 kg

### FIXED DRILLING FEED

Type of feed	TFi500-12' Standard	TFi500-14' Optional	TFi500-16' Optional	TFi500-18' Optional	TFi500-20' 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 (kN)	25	25	25
Feed extension (mm)	1 650	1 650	1 650
Total length (mm)	3 560 / 5 390	4 170 / 6 000	4 780 / 6 610
Hole length (mm)	1 610 / 3 440	2 220 / 4 050	2 830 / 4 660
Rod length (mm)	1 830 / 3 700	2 440 / 4 305	3 050 / 4 915
Net weight (kg)	640 kg	680 kg	730 kg

### BOOM

Type of boom	SB60 / SB60i (TS2-264)
Parallel coverage	54 m²
Boom parallel holding	Hydraulic / electric
Boom extension	1 200 mm
Boom weight, net	2 250 kg
Roll-over angle	358 °
Bolt hole drilling	Yes

### HYDRAULIC SYSTEM

Powerpack	1 x 160 kW (tramming and drilling)
Percussion and feed pump	110 cc
Rotation pump	60 cc
Filtration (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

Control system type	SICA
Drilling control modes	Intelligent torque control / Feed percussion / manual
Upgradeable automation levels	
Comprehensive diagnostic system	
Electronic joystick controls	
15" full color touch screen	
Cable kit for spare part programming	
Safety lock for movement prevention	2 switches
OptiMine®	With configuration readiness

### ELECTRICAL 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	Sodium-Nickel-Chloride technology, 100 kW/h 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 SYSTEM

Flushing of holes	By water
Water booster pump	WBP2 HP
Water pump capacity	185 l/min
Inlet pressure	2 - 7 bar
Flushing water pressure	10 - 15 bar
Shank lubrication device	SLU2 (air / oil mist)
Air compressor	CTN10, 1.0 m³/min (7 bar)
Air and water outlets	Quick coupling
Rock drill oil consumption	180 - 250 g/h
Rock drill air consumption	250 - 350 l/min



**OPERATOR'S SAFETY CABIN**

Safety cabin certification	FOPS / ROPS (ISO 3449 / 3471)
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
Fully adjustable seat	Adjustable for 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 VDC and CD player readiness
Stairs and indoors lights	LED
Audio system	CD / MP3 player with radio
Safety grill	Windshield
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	12 km/h (flat ground) 5 km/h (from 0 to 1.5 km) and 3 km/h (from 1.5 to 3 km) in 1:7 incline
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
Knowledge Box™	Connectivity solution (TS2-535)
Colour scheme	Sandvik
Toolboxes and first aid kit	
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 or RD520 instead of RD525
Power extractor	for RD525 or RD520
Stabilizer diagnostics indicator	for RD520 or RD525

**Feed**

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

**Hydraulic system**

Vaccum 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)

**Electric system**

*Electric cables	Specification TS2-121
Ground fault and overcurrent protection	VYK
Dewatering pump outlet	Site voltage 380 - 690 V
Remote controlled spot lights	2 pcs
Indicator light	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
Light indicator for boom move- ment prevention switch status	2 x on both sides (green or red depending status), 1 x indicator inside cabin

**Air and water system**

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

**Cleaning system**

HP system with reel	Up to 180 bar (TS2-343)
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**Greasing systems**

Automatic system	Lincoln (complete)
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**Operator's safety cabin**

*Low height cabin	Height 2 900 mm
*Low height unit	Height 3 050 mm (incl. tramming camera)
Safety grill lifting mechanism	400i-class
Tramming camera	Rear and side

**Fire suppression system**

Additional fire extinguisher	1 x 7.7 or 9 kg (type ABC)
Manual or automatic system	Ansul, 6 nozzles (TS2-460)

**Carrier**

*Foam filled tires	4 pcs
Fast filling and evacuation system	For hydraulic oil tank only
Rod rack	On carrier side (Max. 400 kg)

**Batteries**

SoNick batteries (4 pcs)	Rental
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EXTRA ITEMS

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®	iSURE II Plus annual license (Advanced drill and blast design including round reports) iSURE III Premium annual license (MWD including pull out analyses iSURE IV Pro annual license (Tunnel development KPI's)
Package: Dual controls	See below
Packages: Automation	Gold, platinum
Packages:Extreme environment	Specification TS2-337
Packages:Teleremote drilling	Specification TS2-422

\*) Replaces standard feature

AUTOMATION PACKAGE : GOLD

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

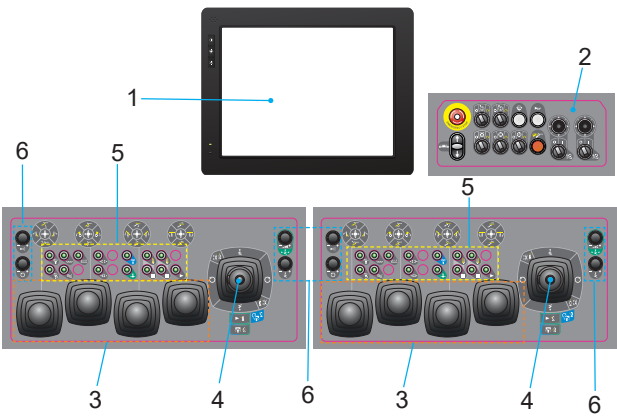
AUTOMATION PACKAGE : PLATINUM

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

DUAL CONTROLS PACKAGE

CONTENTS

SB60 boom with hydraulic parallel holding
THC561 look control panel for multitask-operations



EXTREME ENVIRONMENT PACKAGES (TS2-166)

High temperature package
Extreme high temperature package
Anti-freezing package
High-altitude package
Harsh water flushing package
Harsh water environment package

TELEREMOTE DRILLING PACKAGE (TS2-422)

GUI touch screen
Start / Stop of automation
Manual drilling and boom controls
Control of PTZ cameras
Control of spot lights (separate option)
Sending drilling related data
Unit condition monitoring via GUI screen
Audio and video stream from the unit

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: <ul style="list-style-type: none"><li>• Mode selection: Drilling / Bolting</li><li>• Boom selection: 1 / 2</li><li>• Water and Air ON/OFF</li><li>• Start / Stop of one hole automation</li><li>• Controls for retainer (Option)</li><li>• Telescopic feed extension control</li><li>• Rattling</li></ul>
6. Fine adjustments (feed, percussion, rotation and flushing flow)



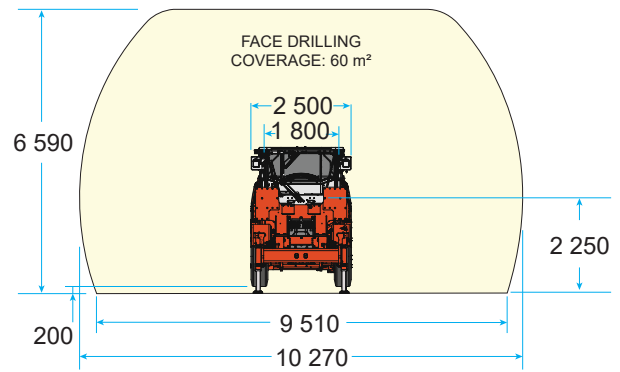
## COVERAGE DRAWINGS

The dimensions are indicative only - All dimensions in mm

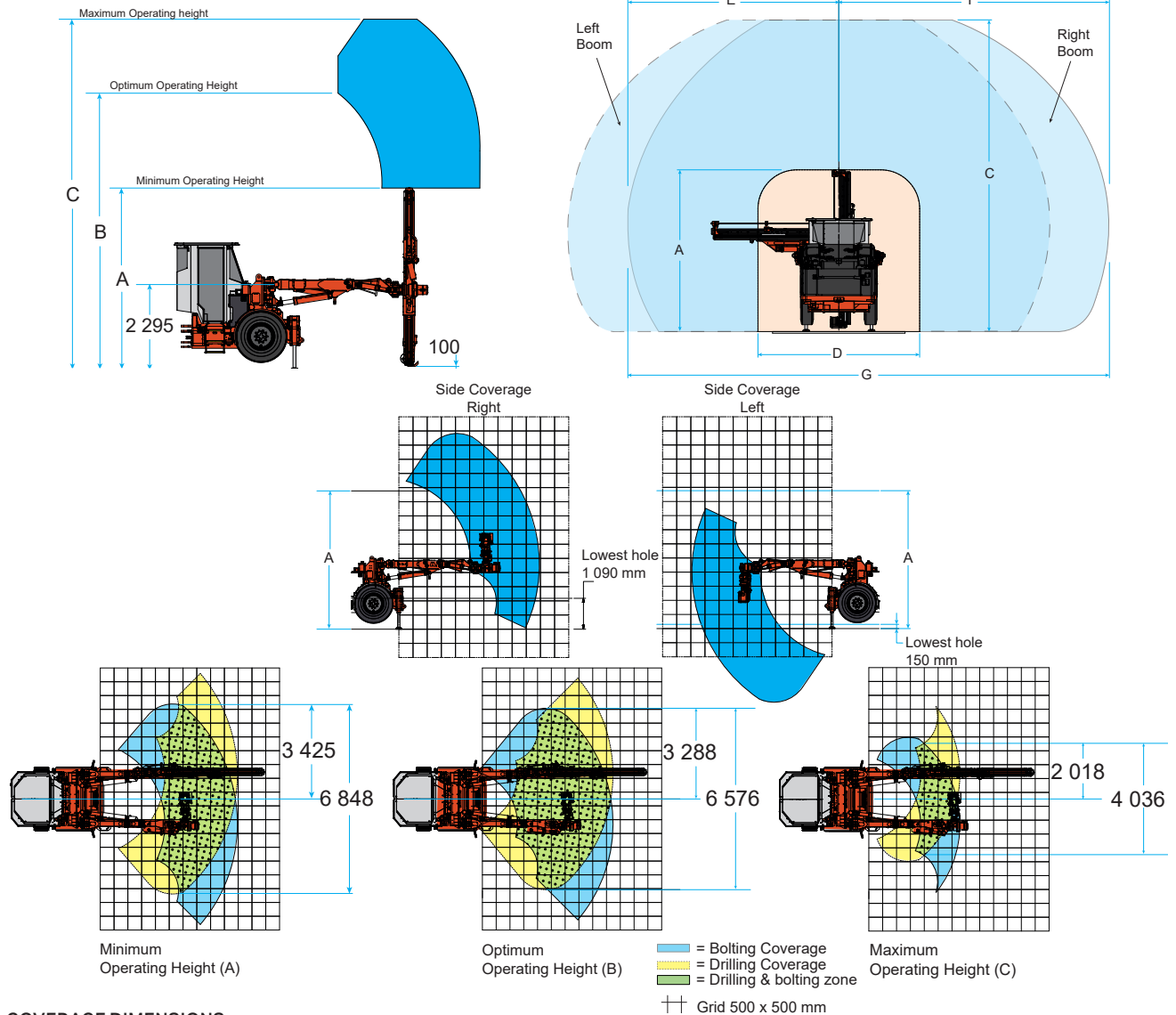
### KEY FEATURES

Coverage	60 m <sup>2</sup> (10 270 x 6 590 mm)
Onboard battery package	Sodium-Nickel-Chloride- technology
Max. battery energy	100 kW/h
Tramming distances	24 km (flat ground), 3.7 km (1:7 incline upwards)
Automation levels	Gold / Platinum
Drift size class (H x W)	4 500 mm x 4 500 mm
Transport width	2 310 mm
Transport height	3 050 mm / 3 150 mm
Transport length	13 550 mm (TFi500-12')
Total weight	27 500 kg depending on options

### FACE DRILLING



### CROSS CUT AND ROOF DRILLING



### COVERAGE DIMENSIONS

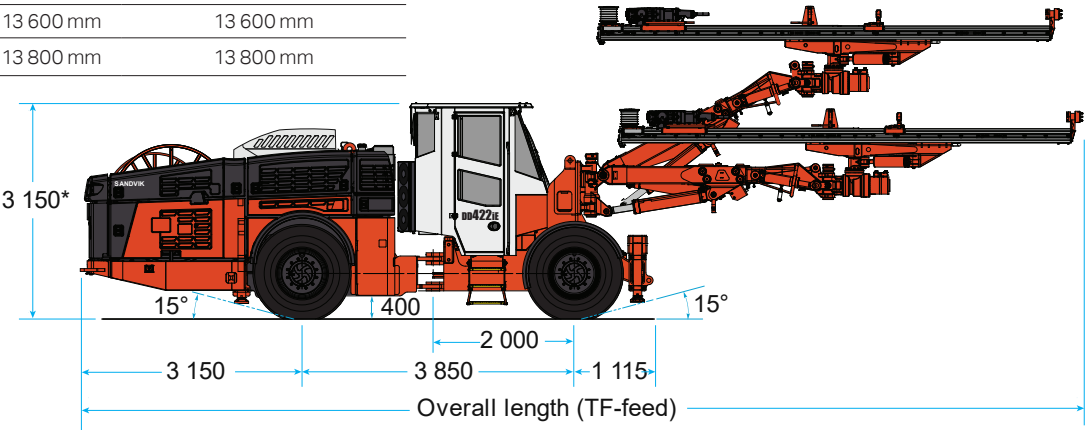
Drilling module	Minimum operating height (A)	Optimum operating height (B)	Maximum operating height (C)	Minimum operating width (D)	Left maximum operating width (E)	Right maximum operating width (F)	Maximum width (G)
TF500-12'	5 435 mm	7 205 mm	9 835 mm	5 435 mm	6 010 mm	7 810 mm	13 820 mm
TF500-14'	6 045 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



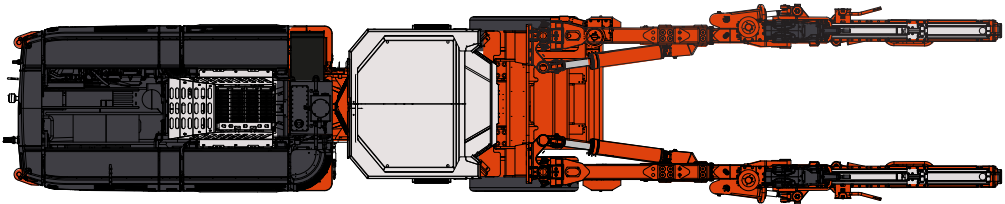
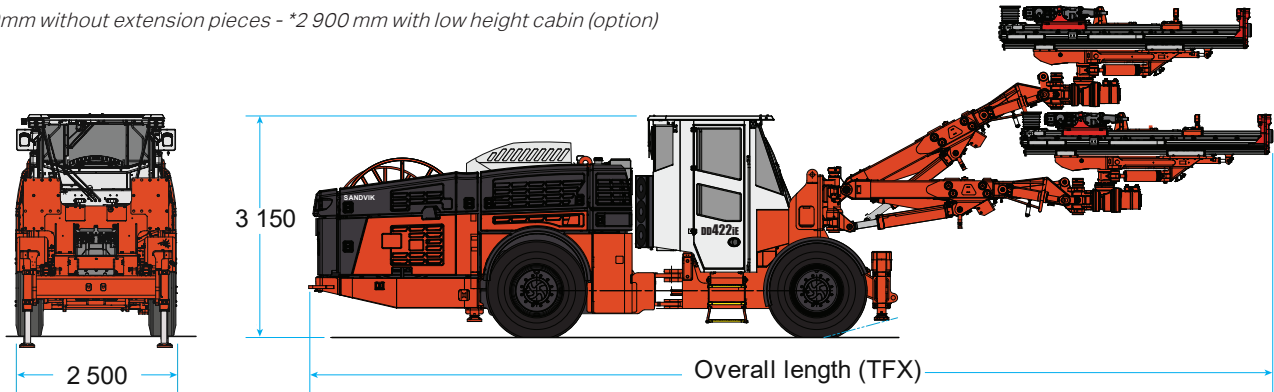
MAIN DIMENSIONS DRAWINGS

The dimensions are indicative only - All dimensions in mm

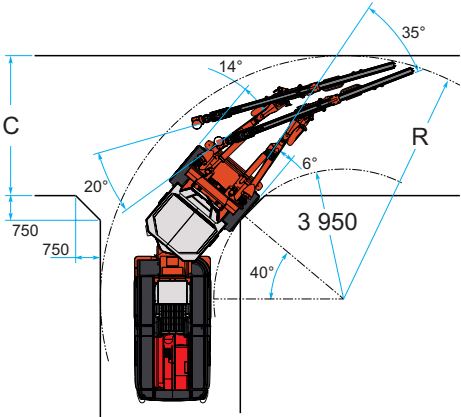
Type of feed	Overall length	Overall length (WITH TRR1)
TFi500-12'	13 550 mm	13 585 mm
TFi500-14'	13 750 mm	13 785 mm
TFi500-16'	14 200 mm	14 235 mm
TFi500-18'	14 950 mm	14 985 mm
TFi500-20'	15 600 mm	15 635 mm
TFX6/12	13 450 mm	13 450 mm
TFX8/14	13 600 mm	13 600 mm
TFX10/16	13 800 mm	13 800 mm

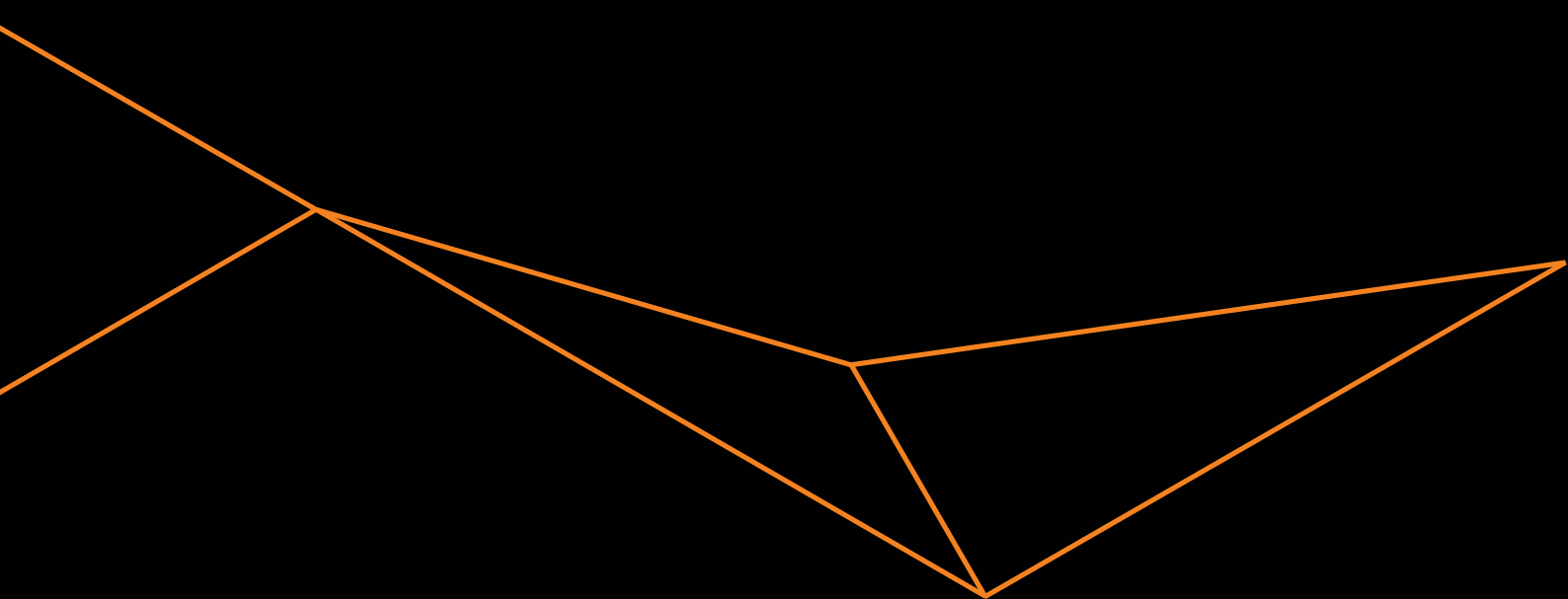


\*3 050mm without extension pieces - \*2 900 mm with low height cabin (option)



Type of type	Radius (R)	T-cross (C)
TFi500-12'	7 000 mm	3 970 mm
TFi500-14'	7 150 mm	4 120 mm
TFi500-16'	7 400 mm	4 300 mm
TFi500-18'	7 550 mm	4 350 mm
TFi500-20'	8 300 mm	5 150 mm





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