

# DS422i Cable bolter

## Technical Specification





## Uncompromised bolting quality

### Key features

|                            |                                   |
|----------------------------|-----------------------------------|
| Optimum bolting coverage   | 5 m x 5 m                         |
| Hydraulic rock drill       | 1 x RD414, 14 kW                  |
| Bolting head               | 1 x LFRC600i                      |
| Boom                       | 1 x SBR60i                        |
| Automation package         | Silver (std), Gold (opt)          |
| Maximum hole length        | 38 m                              |
| Cablebolt length           | 25 m                              |
| Turning width (T-section)  | 4 100 mm                          |
| Transport / bolting width  | 2 730 mm / 3 290 mm               |
| Transport height           | 3 050 mm                          |
| Transport / bolting length | 13 800 mm / 14 000 mm             |
| Total weight               | 29 000 kg<br>depending on options |

Sandvik DS422i is a rock reinforcement drill rig specialized for cement grouted cable-bolt installation in underground mines and tunnels.

Sandvik DS422i is capable of installing up to 25 meter long cable bolts with several steel strands per hole. The drill rig is provided with an on board automatic cement mixer, a cement silo and a steel strand reel. It is therefore autonomous for more than a shift.

The drill rod handling system has a capacity for 19 pieces of 1 3/8" (T35) diameter, round MF drill rods. The recommended drill hole size for this application is 51 mm. However alternative hole size can be selected with advice from your local Sandvik contact. The steel strand diameter is normally 15.2 mm, of either plain steel or bulb anchor strand.

The bolting operation is performed by a single operator located away from the drilling, grouting and cable installing module (LFRC600i Cable Bolting Head).

Sandvik DS422i is designed for safety. For example, most of the daily and routine checks are done with both feet on ground.

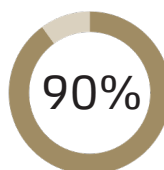


## Main benefits

### Fast and automated one bolt automation

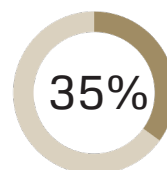
Sandvik DS422i is a cable bolter for 5 x 5 meter size headings combining a safe, ergonomic working environment with high levels of performance. The i-Class platform offers various levels of automation for rock support drilling.

The high level of data collection during bolting allows to better know how drifts and tunnels are supported with possibility to document it.



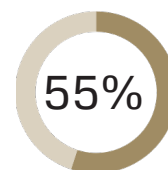
#### Better efficiency

Up to 90%\* automatic bolt installation



#### Improved productivity

Up to 35%\* higher penetration rate



#### Improved Ergonomics

Up to 55%\* increase in operator's visibility



### Better visibility and operator environment

Sandvik DS422i is equipped with modern ergonomic and tiltable (option) cabin. It offers better visibility, good noise isolation and better vibration absorption.



### High level of automation

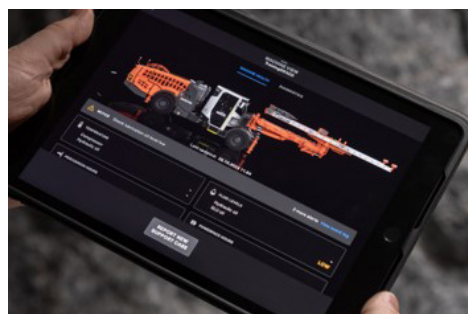
With scalable automation packages, Sandvik DS422i offers a wide range of valuable features for automatic cable bolting:

- Near hole automation  
Aligns the drilling module automatically when the next hole is close enough
- Aim to bottom  
Keeps the end point of the hole in the same location, if the collaring point location is changed.
- Enables advanced mine automation and future tele-remote solutions reducing the need for manual tasks. It allows integration with our digital offering like iSURE®, My Sandvik Remote Monitoring Service, Newtrax MDP and AutoMine®.



### DS422i 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.



## Sandvik 365 Parts and Services

### Proudly keeping you on track!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik DS422i cable bolter'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  | RD414 (TS2-178)                    |
| Percussion power    | 14 kW                              |
| Percussion pressure | Max. 220 bar                       |
| Percussion rate     | 78 Hz                              |
| Stabilizer          | Sleeve type                        |
| Rotation speed      | Max. 300 rpm (with OMS160)         |
| Rotation torque     | 570 Nm (with OMS160)               |
| Hole size (bolting) | 54 - 57 mm                         |
| Recommended rod     | T35                                |
| Shank adapter       | T35 (male), R32 (male), T38 (male) |
| Weight              | 180 kg                             |

Cable bolting head

|                      |                             |
|----------------------|-----------------------------|
| Type of bolting head | LFRC600i                    |
| Bolting head length  | 4', 5', 6'                  |
| Rod handling system  | RC604, 5 or 6 , 19 + 1 rods |
| Centralizer          | Pito 11LH                   |
| Total length         | 3 190 - 3 800 mm            |
| Net weight           | 2 150 kg                    |

Grouting and cabling system

|                           |                                       |
|---------------------------|---------------------------------------|
| Cement mixer              | TCM200i (incl. cement dust collector) |
| Cement pump               | TP8                                   |
| Cement hose reel          | 35 m capacity                         |
| Cement silo               | 600 kg                                |
| Steel strand reel         |                                       |
| Steel strand feeding unit |                                       |

Boom

|                  |                  |
|------------------|------------------|
| Type of boom     | SBR60i (TS2-478) |
| Boom extension   | 1 200 mm         |
| Boom weight, net | 2 200 kg         |
| Roll-over angle  | 358°             |

Hydraulic system

|                                     |                               |
|-------------------------------------|-------------------------------|
| Powerpack                           | HPP475 (1 x 75 kW)            |
| 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               | Intelligent torque control /<br>Feed percussion / manual |
| Upgradeable automation levels        |                                                          |
| Electronic joystick controls         |                                                          |
| 15" full color touch screen          |                                                          |
| Cable kit for spare part programming |                                                          |
| Safety lock for movement prevention  | 2 switches                                               |

Automation package, Silver level (Standard)

|                         |
|-------------------------|
| Drilling control system |
| One-hole automation     |
| Boom manipulator mode   |
| Hole angle measurement  |
| Drill bit navigation    |
| Basic remote monitoring |
| Automatic cement mixer  |

Electric system

|                                  |                                                                |
|----------------------------------|----------------------------------------------------------------|
| Multivoltage                     | 380 – 1 000 V (±10%)                                           |
| Main switch gear                 | MSE10                                                          |
| IP classification                | Specification TS2-132                                          |
| Starting method                  | Direct on line 380 V - 1 000 V                                 |
| Automatic cable reel             | TCR4EC with spooling system                                    |
| Cable reel control               | Operator station and remote control at rear machine)           |
| Front lights                     | 6 x 50 W LED (24V)<br>>125lx, 20 000 lm; 6 000 k               |
| Rear lights                      | 2 x 50 W LED (24V) and<br>2 x 17 W LED (24V) 8 000 lm; 6 000 k |
| Remoted search light             | 1 x 50 W LED (24V)                                             |
| 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                        |
| Water pump capacity       | 100 l/min                   |
| Water pump inlet pressure | 2 bar (Min.)                |
| Flushing water pressure   | 10 - 15 bar                 |
| Shank lubrication device  | SLU-1 (Air / oil mist)      |
| Air compressor            | CTN10 (1.0 m³/min at 7 bar) |
| Oil consumption           | 150 - 250 g/h               |
| Air consumption           | 250 - 350 l/min             |
| Compressed air outlet     | Quick coupling              |

Operator's safety cabin

|                                                  |                                                                    |
|--------------------------------------------------|--------------------------------------------------------------------|
| Safety cabin certification                       | FOPS / ROPS (ISO 3449 / 3471) with safety grill                    |
| Operation                                        | Seated tramming<br>Standing and seated drilling                    |
| Sound pressure level                             | According to EN791, ISO4872, ISO1120<br>Operator station: 69 db(A) |
| Vibration level                                  | According to EN791, ISO2631-1                                      |
| 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 CD player readiness                                   |
| Stairs and indoors lights                        | LED                                                                |
| Audio player                                     | MP3 player, radio, and bluetooth                                   |
| Boot washer                                      | At each cabin entrance                                             |
| Safety laminated acoustic windows                |                                                                    |

Technical Specification

Carrier

|                              |                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of carrier              | C400D (frame-steered)                                                                                                                                  |
| Carrier articulation         | ± 35°                                                                                                                                                  |
| 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)<br>2 x SJ600 (rear)                                                                                                                  |
| Wheel chocks and holders     | 2 Sets                                                                                                                                                 |
| Centralized greasing points  | Specification TS2-463                                                                                                                                  |
| Manual greasing system       | Specification TS2-463                                                                                                                                  |
| Hand held fire extinguisher  | 1 x 7.7 or 9 kg (type ABC)                                                                                                                             |
| Tramming cameras             | Rear and side                                                                                                                                          |
| Tramming alarm               | Standard                                                                                                                                               |
| Toolboxes and first aid kit  |                                                                                                                                                        |
| Knowledge Box™               | Connectivity solution (TS2-535)                                                                                                                        |
| Colour scheme                | Sandvik                                                                                                                                                |
| Documentation                | 1 x Operator's manual<br>1 x Maintenance manual<br>1 x Technical manual (in English only)<br>1 x Parts manual (in English only)<br>2 x Toolman USB key |

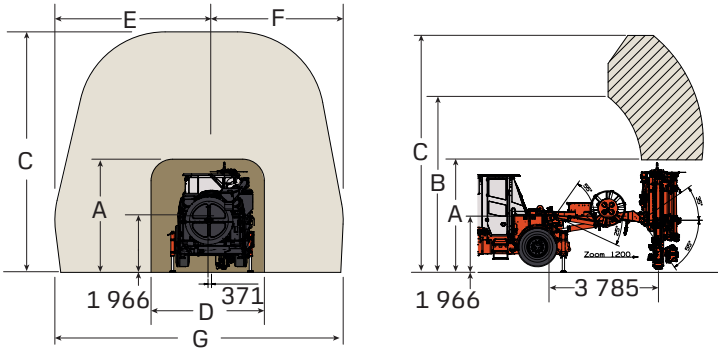
Automation package, Gold level (option) - TS2-539

|                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|
| Automation Silver package content                                                                               |
| Bolt plan transfer                                                                                              |
| Bolting according to plan                                                                                       |
| Near hole automation                                                                                            |
| Aim to bottom                                                                                                   |
| Total station navigation                                                                                        |
| MWD capability                                                                                                  |
| Full remote data monitoring                                                                                     |
| DrillConnect mobile application : Connectivity through Knowledge box™ for easy data transferto and from the rig |

Optional features and packages

|                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rock drill</b><br>*HL710S rock drill                                                                                                                                                                                                                                                                                                                                                                                            | With T35 - T45 (male) shank                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Cable bolting head</b><br>Bolting head oiler<br>Front stinger<br>Conversion kit<br>Cement transfer screw<br>Detecting cement level onboard<br>Service cement hopper                                                                                                                                                                                                                                                             | BC and BCS system (TS2-291)<br><br>One rod tube size<br><br>Cement level sensor                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Hydraulic system</b><br>Vacuum pump<br>By pass oil filter                                                                                                                                                                                                                                                                                                                                                                       | For hydraulic system                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Drilling control system</b><br>Access detector, or protector                                                                                                                                                                                                                                                                                                                                                                    | Mandatory in Europe (TS2-211)                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Air and water system</b><br>*Air compressor<br>Compressed air outlet<br>Water hose reel and hose                                                                                                                                                                                                                                                                                                                                | CT28 (2.8 m³/min, at 7 bar)<br>Quick coupling<br>THR2.5E with Ø38 mm (1 ½"), 65 m                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Cleaning system</b><br>LP system with reel<br>HP system with reel<br>Bolting module continuous washing system                                                                                                                                                                                                                                                                                                                   | Up to 15 bar (TS2-343)<br>Up to 180 bar (TS2-343)<br>Remote controlled                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Greasing systems</b><br>Manual system<br>Automatic system                                                                                                                                                                                                                                                                                                                                                                       | Specification TS2-463<br>Lincoln (complete)                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Electric system</b><br>*Option voltage<br>*Electric cables<br>Ground fault and overcurrent protection<br>Dewatering pump outlet<br><br>Multivoltage basic<br>Multivoltage pro<br>Current draw reducer unit<br>Remote controlled spot lights<br>Indicator lights for jacks<br>Earth continuity control<br><br>Auxiliary outlet on carrier<br>Battery jump start<br>Indicator light for boom movement<br>prevention switch status | 1 000 V (50 / 60 Hz) with DOL starter<br>Specification TS2-121<br>VYK (excluding CAN/USA)<br>Site voltage 380-690 V, 50/60 Hz<br>400V, 50/60 Hz (+ transformer)<br>1 000 V, 50 Hz<br>380 – 440 V, 690 V 50 or 60 Hz<br>380 – 1 000 V, 50 or 60 Hz<br><br>2 pcs<br>Up and down<br>1 wire pilot circuit with remote reset / disconnect<br>1 x 110 V or 1 x 230 V, 16 A<br>Optional<br>2 x on both sides, 1 x inside cabin (green or red depending status) |
| <b>Operator's safety cabin</b><br>*Low height cabin<br><br>Tilting system<br>Safety grill                                                                                                                                                                                                                                                                                                                                          | FOPS/ROPS (ISO 3449/3471)<br>height 2 900 mm<br>Max. 15° (+ 100 mm total height)<br>Lifting mechanism (400i-class)                                                                                                                                                                                                                                                                                                                                      |
| <b>Fire suppression system</b><br>Spare hand held fire extinguisher<br>Manual or automatic system<br>Fire suppression system                                                                                                                                                                                                                                                                                                       | 1 x 7.7 or 9 kg (type ABC)<br>Ansul, 6 nozzles (TS2-460)<br>Sandvik Eclipse™ (TS2-461)                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Carrier</b><br>*Diesel engine<br>*Foam filled tires<br>Fast filling system<br>Rod rack (max. load 400 kg)                                                                                                                                                                                                                                                                                                                       | B4.5, 121 kW, Stage V<br>4 pcs<br>Complete<br>Carrier side                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Extra items</b><br>Spare rock drill<br>Spare wheel assembly<br>Special tools for rock drill<br><br>Documentation<br>Warranty extension<br>Package: Automation<br>Packages: Country<br>Package: Environmental                                                                                                                                                                                                                    | RD414, HL710<br>Standard or foam filled tire<br>Field kit (TS2-181)<br>Complete set (TS2-180)<br>Extra, Catbase, Link one manuals<br>One year (excl. Kazakhstan)<br>Gold (TS2-539)<br>AUS, USA, CAN, EU, SAS<br>TS2-523                                                                                                                                                                                                                                 |
| *) Replaces standard feature                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Technical drawings

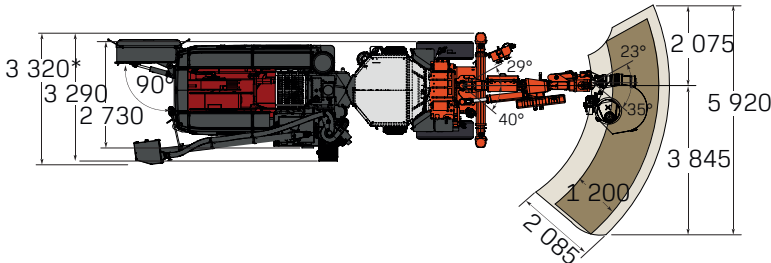
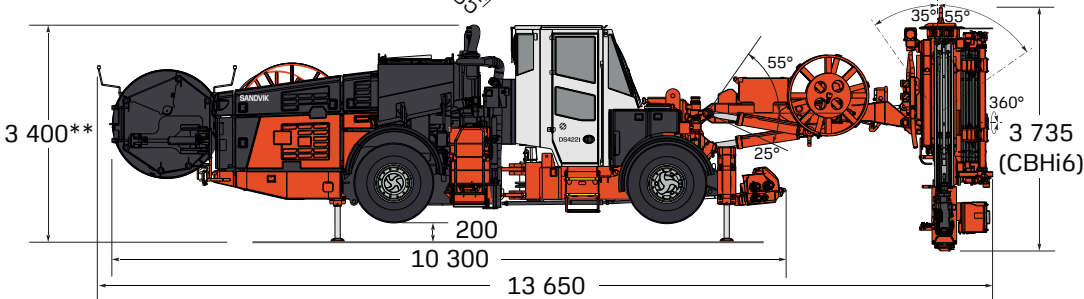
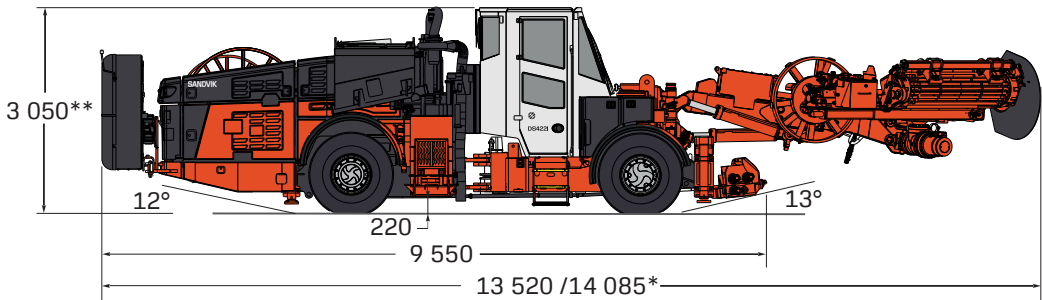


Coverage (Height)

| Drilling module | Minimum operating height (A) | Optimum operating height (B) | Maximum operating height (C) |
|-----------------|------------------------------|------------------------------|------------------------------|
| CBHi6           | 3 935                        | 6 138                        | 8 284                        |
| CBHi5           | 3 630                        | 5 833                        | 7 979                        |
| CBHi4           | 3 325                        | 5 928                        | 7 713                        |

Coverage (Width)

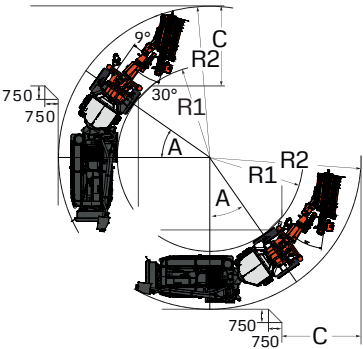
| Drilling module | Minimum operating width (D) | Left maximum width (E) | Right maximum width(F) | Maximum width (G) |
|-----------------|-----------------------------|------------------------|------------------------|-------------------|
| CBHi6           | 3 935                       | 5 438                  | 4 572                  | 10 010            |
| CBHi5           | 3 630                       | 5 133                  | 4 267                  | 9 400             |
| CBHi4           | 3 325                       | 4 867                  | 4 001                  | 8 868             |



\*\* +100 mm with cabin tilt option

| Cornering            | Turning left         | Turning right        |
|----------------------|----------------------|----------------------|
| Angle (A)            | 35°                  | 35°                  |
| Internal radius (R1) | mm 5 250 mm          | 5 200 mm             |
| External radius (R2) | mm 8 250 / 8 500* mm | 8 700 mm / 8 900* mm |
| T-cross (C)          | mm 4 200 / 4 450* mm | 4 700 mm / 4 900* mm |

\*With filling screw option



All dimensions in mm

# SANDVIK

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