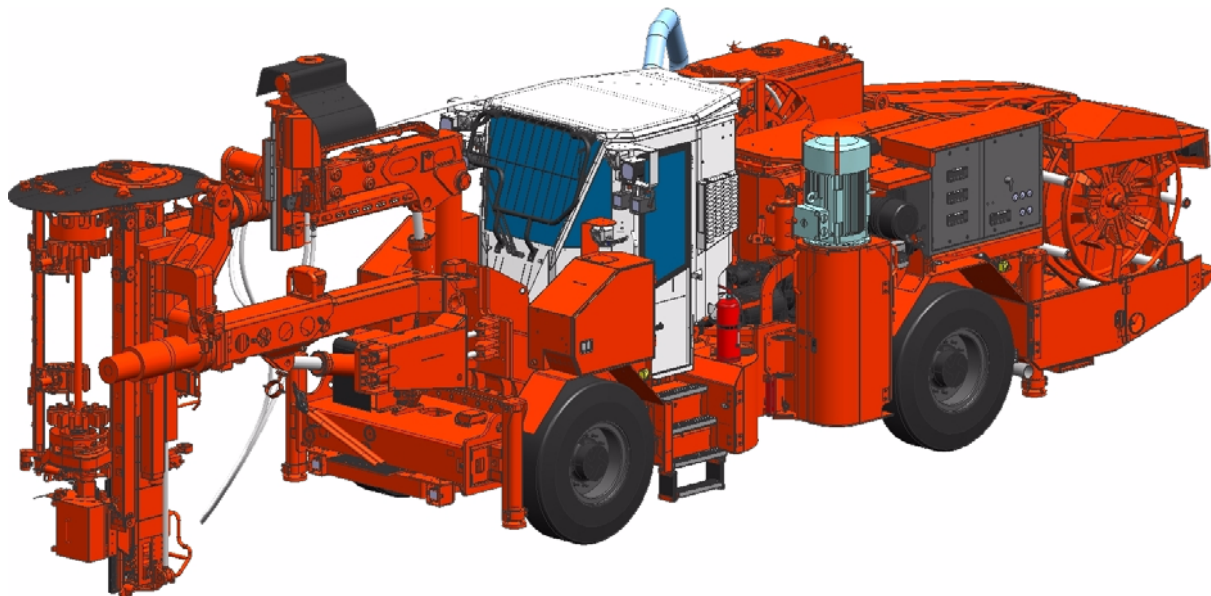


# *Sandvik DS520-TC*

## *Underground Drill Rig*



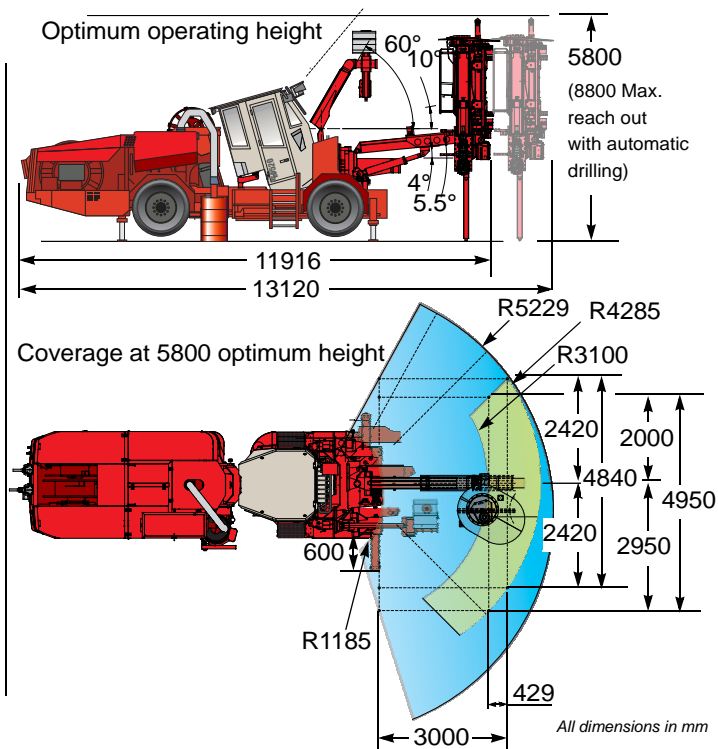
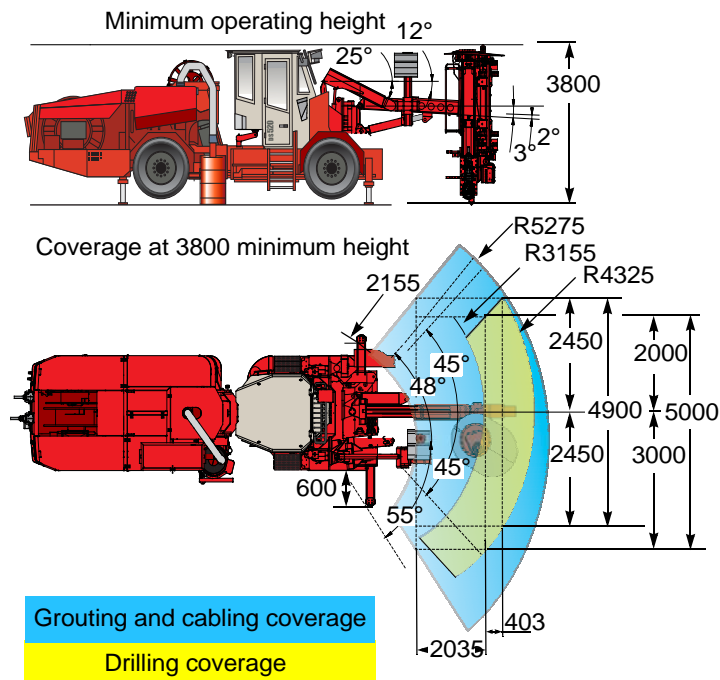
The Sandvik DS520-TC is a rock reinforcement drill rig specialized into cement grouted cablebolts installation. This rig is able to install up to 38 meters long cablebolts with several steel strand per hole.

For a maximized productivity in a 5,5x5,5m drift it is provided with 2 booms. One is dedicated to drilling with automated features such as one hole automatic drilling, the other one is dedicated to grouting and cabling and can reach several fans from one machine set up. Equipped with a patented cement silo lowering system, the machine can be refilled safely from ground level. The steel strand reel can be changed from the rear end of the unit with direct access from an utility vehicle to it. It can handle usual 15,2mm diameter steel strand from plain or bulbed type.

Operator comfort is achieved by enclosed soundproof and air conditioned cabin with easy-to-use electronic controls. The unit allows the operator to concentrate on safe, fast and efficient rock reinforcement. Additional comfort is achieved with tiltable cabin which assures good visibility to all bolting locations.

|  |                 |
|--|-----------------|
| Cablebolt length                       | 38m             |
| Hole diameter                          | 51-57mm         |
| Rock Drill                             | HL510 R32 Male  |
| Drilling Feed                          | LF700 / Pito 5  |
| Rod handling system                    | RC700           |
| Boom                                   | SB120P          |
| Control system                         | TPC LH          |
| Carrier                                | TC8             |
| Total weight<br>(depending on options) | Around 28 500kg |

## Coverage area



## Hydraulic rock drill

Technical Specification 2-1150

|                              |                       |
|------------------------------|-----------------------|
| Rock Drill                   | HL510                 |
| Percussion power             | 16 kW                 |
| Percussion pressure          | 120 - 175 bar         |
| Percussion rate              | 59 Hz                 |
| Rotation speed               | 0...250 rpm           |
| Rotation torque              | Max. 630 Nm (OMS125)  |
| Hole size                    | 51 - 57 mm            |
| Shank adapter                | R32 or T35 Male       |
| Weight                       | 130 kg                |
| Flushing water pressure      | 15 bar                |
| Shank lubrication device     | Air /oil mist SLU     |
| Shank lubrication compressor | CT10, 1m³/min (7 bar) |

## Boom

Technical Specification 4-3310

|                   |             |
|-------------------|-------------|
| Boom type         | SB120P      |
| Parallelism       | Automatic   |
| Boom extension    | 1200 mm     |
| Stinger extension | 1500 mm     |
| Rotation angle    | 360°        |
| *Cylinder rods    | Harsh water |

## Instrumentation

Technical Specification 5-9201

|         |   |
|---------|---|
| TMS DDS | directions of drilling + hole depth, cumulative depth values and indication of programmable hole length + drilling speed and average penetration rate values. |
|---------|---|

## Drilling module

Technical Specification 3-1545

|                    |                |
|--------------------|----------------|
| LF70x              | x= 4', 5'; 6'  |
| Rod retainer       | 1 x Pito 5     |
| Cuttings collector | 1 x CC705      |
| Bolting head oiler | Standard       |
| *HL510-45          | T35 shank male |

## Rod handling system

Technical Specification 3-3215

|          |                   |
|----------|-------------------|
| RC70x    | x=4' / 5' /6'     |
| Capacity | 20+1 rods / tubes |

## Grouting and cabling system

|                           |                                   |
|---------------------------|-----------------------------------|
| Grouting and cabling boom | GB3 (dedicated)                   |
| Automatic cement mixer    | TCM200 with cement dust collector |
| Cement pump               | TP8                               |
| Mixer washing system      | Automatic                         |
| Cement silo               | 1.2 Tons                          |
| Steel strand reel         | 775m                              |
| *Steel strand reel        | One additional                    |

## Cleaning system

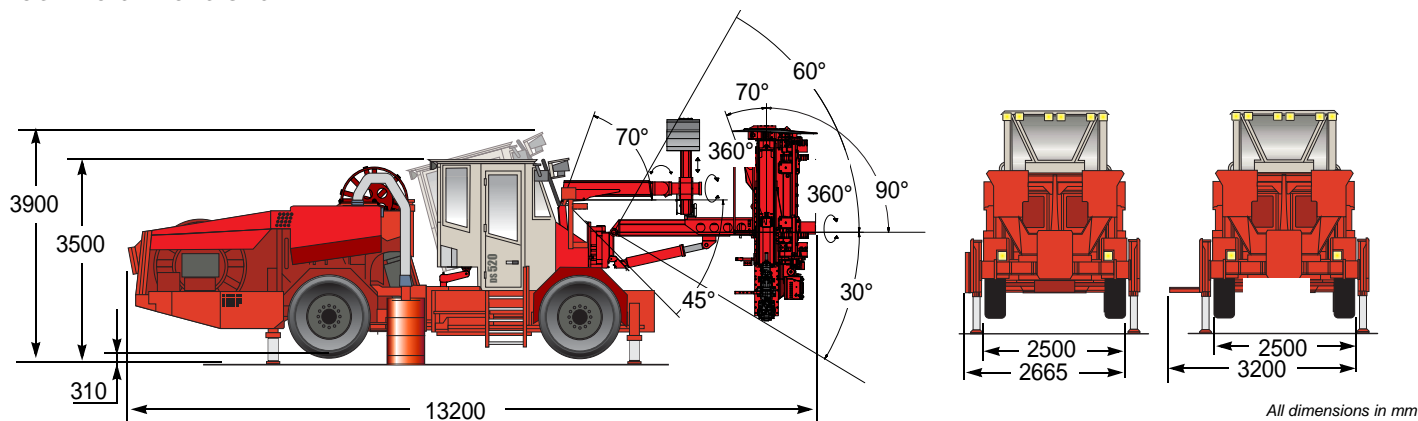
|  |   |
|--|---|
| High pressure cleaning system with reel  | Max. 180 bar  |
| Bolting module continuous Washing system | Water jet remote controlled from cabin                |
| *Pressure cleaning system with reel      | Max. 15 bar (11 bar additional to mine water network) |

## \*Greasing systems and options

|   |                   |
|---|-------------------|
| *Greasing unit with pump, reel and nozzle | Manual            |
| *Automatic greasing system                | Carrier and booms |

\*Optional features/components

## Machine dimensions



## Hydraulic system

|                           |   |
|---------------------------|---|
| Filtration size           | 20 micron (pressure)<br>12 micron (returns) |
| Oil cooler                | Cooling capacity 45kW<br>OW45 water cooler  |
| Hydraulic oil tank volume | 235l Max.                                   |
| Tank filling              | Electric pump                               |
| Powerpack                 | HPP590 (90kW)                               |
| Percussion pump           | 100cc (variable)                            |
| Grouting pump             | 100cc (variable)                            |
| Rotation pump             | 45cc (variable)                             |
| Boom movement pump        | 28cc (variable)                             |
| Air conditioning pump     | 28cc (fixed)                                |
| *Oil cooler               | Harsh water                                 |
| *Biodegradable oils       | Shell Naturelle HFE                         |

## Control system

|                               |   |
|-------------------------------|---|
| Type                          | TPC LH  |
| One hole data drilling system | One hole drilled automatically                          |
| MWD system                    | Measuring while drilling                                |
| DATA collection               | Drilling and cable bolting data acquisition and storage |
| Connectivity                  | Wireless / USB stick for fans plans upload/download     |
| Power control                 | Ajustable full power<br>Ajustable collaring power       |
| Rotation control              | Ajustable rotation speed<br>Reversible rotation         |
| Anti-jamming control          | Ajustable anti-jamming pressure                         |
| Flushing control              | Water flushing flow and pressure control                |

## \*Fire suppression system and options

|  |   |
|--|---|
| *Manual fire suppression system (Ansul)    | 6 nozzles + 1x7,7kg hand held fire extinguisher |
| *Automatic fire suppression system (Ansul) | 6 nozzles + 1x7,7kg hand held fire extinguisher |
| *Hand held fire extinguisher               | 1x7.7kg   |

## Electric system and \*options

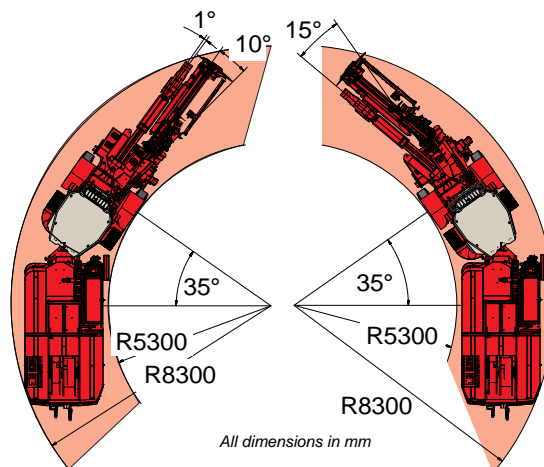
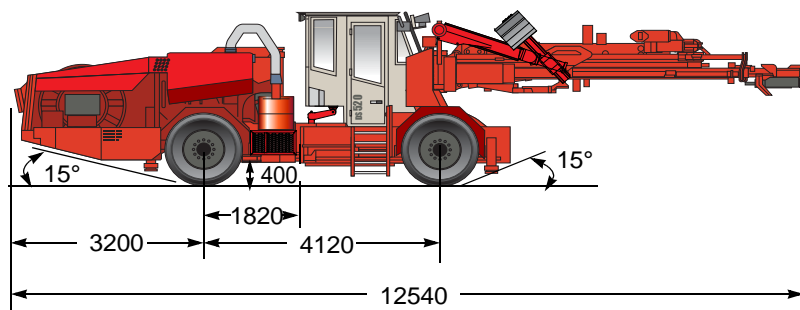
|  |  |
|--|--|
| Total input power                        | 115 kW   |
| Main switch                              | MSE 10   |
| Standard voltages                        | 380-690 VAC  |
| Voltage fluctuation                      | +/- 10%  |
| Automatic cable reel                     | TRC3EL   |
| Cable reel control (in & out)            | Operator station   |
| Star delta starting                      | 380VAC - 690VAC  |
| *Ground fault and overcurrent protection | VYK  |
| *Electric cable rubber or PUR            | 150 meters<br>See spec 5-4100  |
| *Optional voltage                        | 1000 VAC   |
| *Optional outlet                         | 230V outlet Max.4500VA<br>3-phase outlet, network voltage<br>Extra 230V outlets + 380V outlet with transformer |

## Flushing system and \*options

|                             |  |
|-----------------------------|--|
| Flushing                    | Water  |
| Water pump                  | WBP 2 (4 kW)                                     |
| Water pump capacity         | 100 l/min (Max. 12bar)                           |
| Inlet pressure              | 2-7 bar (while drilling)                         |
| Mine air network connection | IP5 air cleaner                                  |
| Water hose reel             | THR 2.5E   |
| Water hose 32mm (1"1/4)     | 65 meters  |
| 38mm (1"1/2)                | 100 meters                                       |
| *Air mist flushing packages | For external or internal supply of air and water |

## \*Optional features/components

## Tramming dimensions



## Tramming

|                            |   |
|----------------------------|---|
| Tramming speed             | Max. 18 km/h on horizontal<br>14% = 1:7 = 8° Max. 6km/h |
| Gradeability / Inclination | Max. 15° / 5°   |

## Operator's station

|   |  |
|---|--|
| Safety cabin                            | FOPS (ISO 3449) stainless steel  |
| Controls                                | Drilling and tramming  |
| Sound pressure level according to EN791 | Operator station: LPA 80 dB(A)<br>Emitted: LWA126 dB(A)                                |
| Seat                                    | Seat with head rest  |
| Cabin air conditioning                  | Cooling (drilling and tramming)<br>*Heating (drilling and tramming)<br>Filtration 100µ |
| Front screen protection bars            | Standard   |
| Cabin audio system                      | MP3 player / CD player / radio<br>loud speakers  |
| Cabin                                   | Tiltable 15°<br>(with foot squeeze protection)   |
| Boots washer                            | One at each cabin access   |

## Lights

|                           |                 |
|---------------------------|-----------------|
| Front working lights      | 6x35W HID (24V) |
| Front driving lights      | 2x35W HID (24V) |
| Rear working lights       | 2x35W HID (24V) |
| Rear driving lights       | 4x35W HID (24V) |
| Remote controlled search  | 2x35W HID (24V) |
| Cement mixer light        | 1x35W HID (24V) |
| Extra working lights      | 2x35W HID (24V) |
| Parking rear brake lights | 2x Red LED      |
| Amber strobe light        |                 |

## \*Packages

|                                |  |
|--------------------------------|--|
| *Harsh water options (level 1) | Oil cooler + boom cylinders            |
| *Harsh water options (level 2) | Level 1 + steering and jacks cylinders |
| *Regional                      | AUS, USC, EUR                          |

## Carrier

|                             |  |
|-----------------------------|--|
| Carrier type                | Wheel mounted, frame steering  |
| Carrier name                | TC8  |
| Transmission                | Spicer 32 000 Hydrodynamic   |
| Axles                       | Spicer   |
| Tyres                       | 14.00-24   |
| Diesel engine               | MB OM906LA diesel engine,<br>Tier III, 170kW   |
| Diesel engine control       | Electronic   |
| Exhaust catalyser + muffler | Standard   |
| Brakes                      | Service, hydraulically operated<br>wet disc brakes.<br>Emergency & parking SAHR<br>type, fail safe wet disc brakes |
| Ground clearance            | 400 mm   |
| Rear oscillation            | +/- 8°   |
| Frame steering              | +/- 35°  |
| Fuel tank                   | 150 liters   |
| Hydraulic jacks             | TJ60 (front telescopic)<br>TJ75 (rear)   |
| Wheel chocks and holder     | 2 pieces   |
| *Fast filling systems       | For fuel/complete (Wiggins)  |
| *Sealed gel batteries       |  |
| *Battery jump start         |  |
| *Foam filled tyres          |  |

## Extra items

|                              |                         |
|------------------------------|-------------------------|
| Spare rock drill             | HL510                   |
| Spare wheel assembly         | Standard or foam filled |
| Special tools for rock drill |                         |

\*Optional features/components

Sandvik Mining and Construction reserves the right to change this specification without further notice.