Sandvik DD422iE is an intelligent control system based mining jumbo with electric driveline system for underground development drilling and small scale tunneling. This electric driveline system replaces the diesel engine used for traming producing zero emissions, reduced operating costs and increased drilling productivity via intelligent drilling power management system. Combined with the wide range of automatic drilling functions this drill rig will offer increased productivity, reduced costs and the top level of product safety and care for the environment for underground mining industry.

Sandvik DD422iE is equipped with onboard battery package and electric motor that provides mechanism to tram the unit without the diesel combustion engine. With the intelligent power management system patented by Sandvik the charging of the batteries can be done during normal drilling cycle to ensure maximum traming energy available all the time. The same system can be used to draw additional electric power for drilling from the onboard battery pack increasing the drilling productivity without compromising the maximum peak power load taken from the mine electrics.

Sandvik DD422iE provides maximized operator ergonomics and comfort in use with a fully ROPS/ FOPS-compliant cabin that significantly reduces both noise and dust levels. With the powerful Sandvik RD525 drifter that provides smooth and reliable performance and the widest range of options, the whole concept of underground face drilling is taken to a new level.

**KEY FEATURES**

<table>
<thead>
<tr>
<th>Coverage</th>
<th>60 m² (10 270 x 6 590 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole length</td>
<td>Up to 5 270 mm</td>
</tr>
<tr>
<td>Hydraulic rock drills</td>
<td>2 x RD525, 25 kW</td>
</tr>
<tr>
<td>Booms</td>
<td>2 x SB60 / SB60i</td>
</tr>
<tr>
<td>Control system</td>
<td>SICA</td>
</tr>
<tr>
<td>Onboard battery package</td>
<td>Sodium-Nickel-Cloride-technology</td>
</tr>
<tr>
<td>Max. battery energy</td>
<td>100 kWh</td>
</tr>
<tr>
<td>Tramming distances</td>
<td>24 km (flat ground), 3.7 km (1:7 incline upwards)</td>
</tr>
<tr>
<td>Automation levels</td>
<td>Silver / Gold / Platinum</td>
</tr>
<tr>
<td>Drift size class (H x W)</td>
<td>4 500 mm x 4 500 mm</td>
</tr>
<tr>
<td>Transport width</td>
<td>2 500 mm</td>
</tr>
<tr>
<td>Transport height</td>
<td>3 050 mm / 3 150 mm</td>
</tr>
<tr>
<td>Total weight</td>
<td>27 500 kg depending on options</td>
</tr>
</tbody>
</table>
**HYDRAULIC ROCK DRILL**

- **Type of rock drill**: RD525 (TS2-236)
- **Percussion power**: 25 kW
- **Impact frequency**: 95 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

**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

**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
- **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 FEED**

<table>
<thead>
<tr>
<th>Type of feed</th>
<th>TFi500-12'</th>
<th>TFi500-14'</th>
<th>TFi500-16'</th>
<th>TFi500-18'</th>
<th>TFi500-20'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed force (Max.)</td>
<td>25 kN</td>
<td>25 kN</td>
<td>25 kN</td>
<td>25 kN</td>
<td>25 kN</td>
</tr>
<tr>
<td>Feed extension</td>
<td>1 650 mm</td>
<td>1 650 mm</td>
<td>1 650 mm</td>
<td>1 650 mm</td>
<td>1 650 mm</td>
</tr>
<tr>
<td>Total length</td>
<td>5 355 mm</td>
<td>5 965 mm</td>
<td>6 575 mm</td>
<td>7 185 mm</td>
<td>7 710 mm</td>
</tr>
<tr>
<td>Hole length</td>
<td>3 440 mm</td>
<td>4 050 mm</td>
<td>4 660 mm</td>
<td>5 270 mm</td>
<td>5 880 mm</td>
</tr>
<tr>
<td>Rod length</td>
<td>3 700 mm</td>
<td>4 305 mm</td>
<td>4 915 mm</td>
<td>5 525 mm</td>
<td>6 135 mm</td>
</tr>
<tr>
<td>Net weight</td>
<td>500 kg</td>
<td>530 kg</td>
<td>560 kg</td>
<td>590 kg</td>
<td>620 kg</td>
</tr>
</tbody>
</table>

**ELECTRICAL SYSTEM**

- **Multivoltage**: Compliancy from 380 to 1 000 V, 50 and 60Hz
- **Total installed power**: 195 kW
- **Main switch gear**: MSE20
- **IP classification**: Specification TS2-132
- **Starting method**: Inverter controlled soft starting
- **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-Cloride technology, 100 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 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 EN 16228, ISO4872, ISO1120. 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**: Yes
- **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
- **Boot washer**: At each cabin entrance
- **Safety laminated acoustic windows**: Yes
OPTIONAL FEATURES AND PACKAGES

CARRIER

<table>
<thead>
<tr>
<th>Type of carrier</th>
<th>C400E (frame-steered)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier articulation</td>
<td>± 40°</td>
</tr>
<tr>
<td>Rear axle oscillation</td>
<td>± 8°</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>330 mm</td>
</tr>
<tr>
<td>Transmission</td>
<td>Inverter controlled electric motor with mechanical link to axles</td>
</tr>
<tr>
<td>Axles</td>
<td>Dana Spicer</td>
</tr>
<tr>
<td>Tires</td>
<td>14.00 – 24 PR28</td>
</tr>
<tr>
<td>Brakes</td>
<td>SAHR type, fail-safe wet disc brakes</td>
</tr>
<tr>
<td>Trimming speed</td>
<td>12 km/h (flat ground)</td>
</tr>
<tr>
<td></td>
<td>5 km/h (from 0 to 1.5 km) and 3 km/h (from 1.5 to 3 km) in 1.7 incline</td>
</tr>
<tr>
<td>Gradeability / sideways tilt</td>
<td>Max. 15° / 5° (according to EN 16228-2)</td>
</tr>
<tr>
<td>Hydraulic jacks</td>
<td>2 x SJ500 (front)</td>
</tr>
<tr>
<td></td>
<td>2 x SJ600 (rear)</td>
</tr>
<tr>
<td>Wheel chocks and holders</td>
<td>2 Sets</td>
</tr>
<tr>
<td>Centralized greasing points</td>
<td>Specification (TS2-463)</td>
</tr>
<tr>
<td>Manual greasing system</td>
<td>Specification (TS2-463)</td>
</tr>
<tr>
<td>Hand held fire extinguisher</td>
<td>1 x 7.7 or 9 kg (type ABC)</td>
</tr>
<tr>
<td>Trimming alarm</td>
<td>Standard</td>
</tr>
<tr>
<td>Colour scheme</td>
<td>Sandvik</td>
</tr>
<tr>
<td>Toolboxes and first aid kit</td>
<td>2 x Operator’s manual</td>
</tr>
<tr>
<td></td>
<td>2 x Maintenance manual</td>
</tr>
<tr>
<td></td>
<td>2 x Technical manual (in English only)</td>
</tr>
<tr>
<td></td>
<td>2 x Parts manual (in English only)</td>
</tr>
<tr>
<td></td>
<td>2 x Toolman USB Key</td>
</tr>
<tr>
<td>Documentation</td>
<td>2 x Operator’s manual</td>
</tr>
<tr>
<td></td>
<td>2 x Maintenance manual</td>
</tr>
<tr>
<td></td>
<td>2 x Technical manual (in English only)</td>
</tr>
<tr>
<td></td>
<td>2 x Parts manual (in English only)</td>
</tr>
<tr>
<td></td>
<td>2 x Toolman USB Key</td>
</tr>
</tbody>
</table>

OPTIONAL FEATURES AND PACKAGES

Cleaning system

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

Greasing systems

- Automatic system
  - Lincoln (complete)

Operator’s safety cabin

- *Low height cabin
  - Height 2 900 mm
- *Low height unit
  - Height 3 050 mm (incl. tram camera)
  - (standard cabin without 100 mm extension pieces)
- 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
- Rodrack
  - On carrier side (Max. 400 kg)

Batteries

- SoNick batteries (4 pcs)
  - Rental

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
- Extra, Catbase, Link one manuals
  - Silver, gold, platinum
- Packages: Automation
  - Specification TS2-337
- Packages: Extreme environment
  - 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)

* Replaces standard feature

AUTOMATION SILVER PACKAGE

- SB60 boom with hydraulic parallel holding
- Display of feed angles, drilling depth and penetration rate
- Presettable angle and depth indication for reference hole
- Counter and recommended change intervals for bits and tools

AUTOMATION GOLD PACKAGE

- Automation Silver package content
- 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) office tool for planning of drilling, charging and blasting
- Advanced MWD data collection with analyses tool (iSure)

AUTOMATION PLATINUM PACKAGE

- Automation Silver and Gold package content
- SB60i boom with electronic parallel holding
- Hole end correction from different start point
- Semi-automatic boom movements
4. SANDVIK DD422iE - DEVELOPMENT DRILL

<table>
<thead>
<tr>
<th>Type of type</th>
<th>Radius (R)</th>
<th>T-cross (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF500–12'</td>
<td>7 000 mm</td>
<td>3 970 mm</td>
</tr>
<tr>
<td>TF500–14'</td>
<td>7 150 mm</td>
<td>4 120 mm</td>
</tr>
<tr>
<td>TF500–16'</td>
<td>7 400 mm</td>
<td>4 300 mm</td>
</tr>
<tr>
<td>TF500–18'</td>
<td>7 550 mm</td>
<td>4 350 mm</td>
</tr>
<tr>
<td>TF500–20'</td>
<td>8 300 mm</td>
<td>5 150 mm</td>
</tr>
</tbody>
</table>