

DT821 TUNNELING DRILL

TECHNICAL SPECIFICATION

Sandvik DT821 is a two-boom electro hydraulic jumbo for fast and accurate drilling in tunneling and cavern excavation. The hydraulic controlled drilling system with added automatic functions and optional instrumentation enable productive and high quality excavation. The RD520 rock drills deliver superior performance with high consumable life.

Sandvik SB90 universal booms have a large optimum shaped coverage and full automatic parallelism. In addition to face drilling the unit can also be used for crosscutting and bolt hole drilling. An optional utility boom for bolting and utility works is available.

The powerful 4-wheel-drive center articulated carrier ensures rapid and safe tramming with a good balance.

KEY FEATURES

| | |
|-----------------------------|--|
| Coverage area | 110 m ² (14 210 x 8 420 mm) |
| Hydraulic rock drill | 2 x RD520 (20 kW) |
| Drill feed | 2 x TF500-16' |
| Boom | 2 x SB90 |
| Control system | THC561, hydraulic |
| Hole length | Up to 6 180 mm |
| Turning width (T-section) | 4 840 mm (with TF500-16') |
| Transport / drilling width | 2 500 mm / 3 000 mm |
| Transport / drilling height | 2 750 mm / 3 600 mm |
| Transport length | 14 930 mm (with TF500-16') |
| Total weight | 26 500 kg (without utility boom) depending on options |
| Total weight | 28 900 kg (with utility boom) depending on options |



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HYDRAULIC ROCK DRILL

| | |
|----------------------|------------------------------------|
| Type of rock drill | RD520 (TS2-235) |
| Percussion power | 20 kW |
| Percussion pressure | Max. 220 bar |
| Percussion rate | 74 Hz |
| Stabilizer | Hydraulic |
| Rotation speed | Max. 280 rpm (with OMS125) |
| Rotation torque | 625 Nm (with OMS125) |
| Hole size (drifting) | 43 - 64 mm |
| Hole size (cut hole) | 76 - 127 mm |
| Recommended rod | T38 - H35 - R32 T38 - R39 - R35 |
| Shank adapter | T38 (male) |
| Weight | 225 kg |
| Length | 1 010 mm |
| Profile height | 90 mm |

FEED

| Type of feed | Feed force (Max.) | Total length | Hole length | Rod length | Net weight |
|--------------|-------------------|-----------------|-----------------|-----------------|---------------|
| TF512 | 25 kN | 5 270 mm | 3 440 mm | 3 700 mm | 500 kg |
| TF514 | 25 kN | 5 880 mm | 4 050 mm | 4 305 mm | 530 kg |
| TF516 | 25 kN | 6 490 mm | 4 660 mm | 4 915 mm | 560 kg |
| TF518 | 25 kN | 7 100 mm | 5 270 mm | 5 525 mm | 590 kg |
| TF520 | 25 kN | 7 710 mm | 5 880 mm | 6 135 mm | 620 kg |

BOOM

| | |
|-------------------|-------------------|
| Type of boom | SB90 (TS2-265) |
| Parallel coverage | 90 m ² |
| Parallelism | Hydraulic |
| Boom extension | 1 800 mm |
| Feed extension | 1 650 mm |
| Boom weight, net | 2 650 kg |
| Roll-over angle | 358° |

UTILITY BOOM (OPTIONAL)

| | |
|-------------------------------------|-----------------|
| Type of utility boom | SUB3A (TS2-307) |
| Utility boom pump | 60cc (gear) |
| Boom extension | 2 x 2 000 mm |
| Boom weight, net | 2 350 kg |
| Max allowed load | 510 kg |
| Max allowed load with safety canopy | 400 kg |

HYDRAULIC SYSTEM

| | |
|-------------------------------------|-------------------------------|
| Powerpack | HPP555 (2 x 55 kW) |
| Percussion pump | 110 cc (variable) |
| Rotation pump | 60 cc (variable) |
| Filtration size (pressure / return) | 20 µ / 10 µ |
| Oil tank volume | 290 liters |
| Filling pump for hydraulic oil | Electric |
| Cooler for hydraulic oil | OW30 oil-to-water (2 x 30 kW) |

CONTROL SYSTEM

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|------------------------|---|
| Type of control system | THC561, hydraulic (TS2-362) |
| Manual boom control | Direct control Fully proportional Hydraulic parallelism |
| Drilling control | Feed / percussion control |
| Automatic cycle | Stop and return automatics |

ELECTRIC SYSTEM

| | |
|--|--------------------------------|
| Standard voltage | 380 - 690 V (± 10%), 50 Hz |
| Total input power | 135 kW |
| Main switch | MSE20 |
| IP classification | Specification TS2-132 |
| Starting method | Star-delta starter 380 - 690 V |
| Automatic cable reel | TCR4E with spooling system |
| Cable reel control (in / out) | Operator station |
| Front lights (combined working and driving) | 8 x 50 W LED (24V) |
| Rear lights (combined working and driving) | 4 x 50 W LED (24 V) |
| Rear parking / brake lights | 2 x Red LED (24V) |
| Stair and service lights | LED (24V) |

AIR AND WATER SYSTEM

| | |
|---------------------------|--|
| Flushing of holes | By water |
| Water booster pump type | WBP2 HP (11 kW) |
| Water pump capacity | 200 l/min |
| Water pump inlet pressure | 2 - 7 bar |
| Flushing water pressure | 10 - 15 bar |
| Shank lubrication device | SLU-2 (air / oil mist) |
| Air compressor | CTN10 (1.0 m ³ /min at 7 bar) |
| Oil consumption | 180 - 250 g/h |
| Air consumption | 250 - 350 l/min |

OPERATOR'S SAFETY CANOPY

| | |
|-------------------------------|--|
| Canopy certification | FOPS (ISO 3449) |
| Unit height in tramming | 3 600 mm |
| Sound pressure level EN 16228 | Cabin < 103 dB(A) Emitted 126 dB(A) |
| Operation | Standing drilling, seated tramming |

CARRIER

| | |
|------------------------------|---|
| Type of carrier | TC8 (frame-steered) |
| Carrier articulation | ± 37° |
| Rear axle oscillation | ± 8° |
| Ground clearance | 400 mm |
| Diesel engine | MB OM904LA, 110 kW, Tier 3, Stage IIIA |
| Transmission | Hydrodynamic, Spicer T20 000 |
| Axles | Dana Spicer 113 (front) / 123 (rear) |
| Tires | 14.00-24 PR28 |
| Service brakes | Hydraulically applied wet disc brakes |
| Parking / emergency brakes | SAHR type, fail safe wet disc brakes |
| Fuel tank | 150 liters |
| Tramming speed | Horizontal (0%): 16 km/h 14% = 1:7 = 8°: 5.4 km/h |
| Gradeability / sideways tilt | Max. 15° / 5° |
| Carrier stabilization | TJ60 (front), TJ75 (rear) |
| Hand throttle | Standard |
| Hand held fire extinguisher | 7.7 kg (type ABC) |
| Carrier centralized greasing | Specification 5-2110 |
| Tramming alarm | Standard |
| Colour scheme | Sandvik standard |
| Documentation | 2 x Operator's manual 2 x Maintenance manual 2 x Technical manual (in English only) 2 x Parts manual (in English only) 2 x Toolman CD |

OPTIONAL ITEMS

Rock drill

| | |
|---------------------|--|
| *Type of rock drill | RD525 (with 75 kW HPP) HLX5 (with 55kW HPP) |
| Power extractor | For RD520, RD525 or HLX5 |

Feed

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|------------------|--|
| *Feed length | 12', 14', 18', 20' |
| *Telescopic feed | TFX6/12, TFX8/14, TFX10/16 |
| Rod retainer | SCR with TF feed (incl. safety wire) TRR1 with TFX feed (incl. safety wire) |

Utility boom

| | |
|------------------------------------|---|
| Safety canopy | FOPS approved Sliding FOPS safety canopy |
| Spot lights | 2 x 17 W LED |
| Rod racks | For 4 pcs of 10 or 12 ft rods |
| RX expansion bolt installation kit | D30 mm or D41 mm |

Hydraulic system

| | |
|---------------------------------|--------------|
| *Filling pump for hydraulic oil | Manual |
| *Biodegradable oils | Sandvik oils |

Control system

| | |
|-------------------------|---|
| Constant speed drilling | Replaces feed / percussion control |
| Access detector system | Mandatory in Europe (TS2-211) |
| Instrumentation | TMS+D2 for TF and TFX feeds TMS+DDSS2 for TF feeds only TCAD+ with iSURE I-II design and reporting. (with SB40 boom only) iSure III Analysis (with TCAD+) iSURE IV Bolting plan |

Cleaning system

| | |
|--------------------------------|-------------------------|
| Low pressure system with reel | Up to 15 bar (TS2-343) |
| High pressure system with reel | Up to 180 bar (TS2-343) |

Greasing systems

| | |
|------------------|---|
| Automatic system | Lincoln (for carrier, boom, rod handler and utility boom) |
| Manual system | Specification 5-2110 |

OPTIONAL ITEMS

Electric system

| | |
|-------------------------------------|--|
| *Voltage option | 1 000 V (50 Hz) with DOL starting system |
| Electric cables | Specification TS2-121 |
| Spooling device for cable reel | For voltages 690 - 1 000 V |
| Ground fault and overcurrent unit | VYK |
| Electricity outlet in front carrier | 1 x 400 V or 2 x 230 V |
| Remote control for reel(s) | At rear machine |
| Amber flashing light | LED (24 V) |

Air and water system

| | |
|---------------------------|---|
| Flushing flow supervision | |
| *Air compressor | CTN16 (1.6 m ³ /min at 7 bar) |
| Air mist flushing | External air / water supply (incl. IP5 air cleaner) |
| End of hole flushing | 2 x 80 liters receiver (incl. IP5 air cleaner). |
| External air connection | IP5 air cleaner |
| Water hose reel | THR2.5E with water hose 38 mm (1 1/2"), 65 m |

Operator's safety canopy

| | |
|------------------------|--------------------------------|
| Reduced tramming speed | 3rd gear lockout |
| Boot washer | At operator's station entrance |

Fire suppression system

| | |
|------------------|-------------------|
| Manual system | Ansul (6 nozzles) |
| Automatic system | Ansul (6 nozzles) |

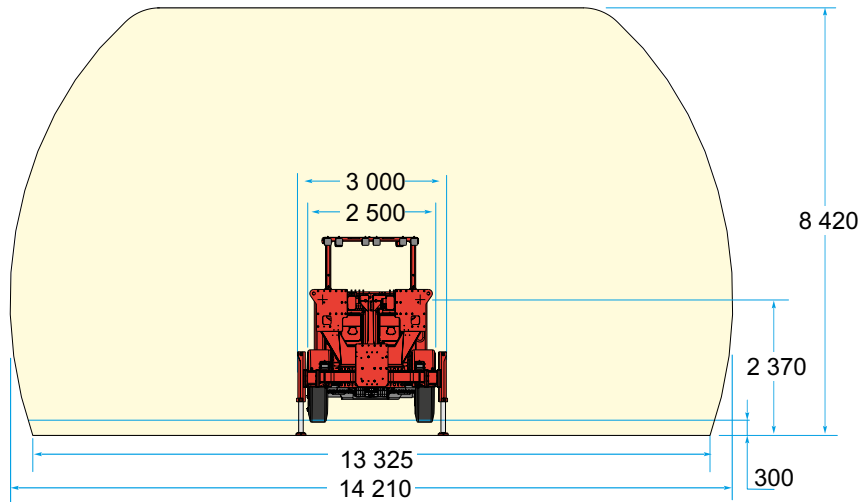
Carrier

| | |
|--------------------------|---|
| *High speed carrier | TC8, incl. MB OM906LA, 170 kW, Tier 3, Stage IIIA, with Spicer T32 000 transmission |
| *High speed carrier | TC8, incl. QSB6.7, 164 kW, Tier 4i, Stage IIIB, with Spicer T32 000 transmission. |
| *Optional engine | QSB4.5, 119 kW, Tier 4i, Stage IIIB |
| Exhaust catalyzer | For Tier 3 engines |
| *Tires | Foam filled tires |
| Fast filling system | For fuel or complete |
| Rod rack on carrier side | 12 to 20 ft rods |
| Tramming camera | Rear |
| Wheel chocks and holders | 2 pieces |

Extra items

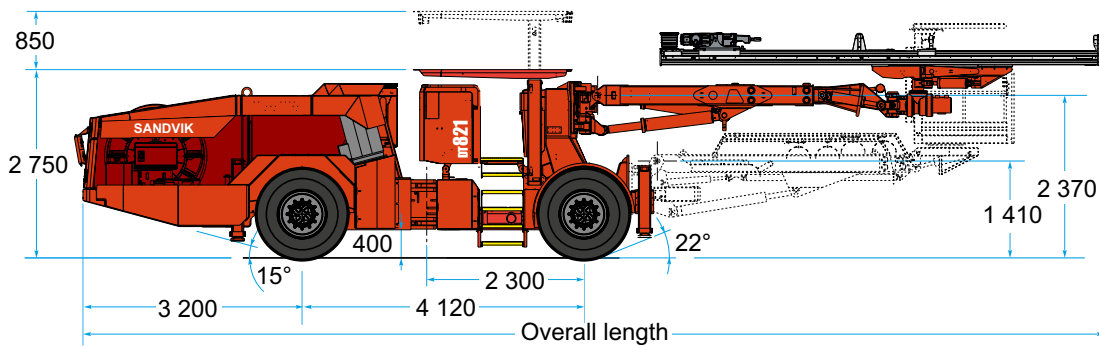
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| Spare rock drill | RD520, RD525 or HLX5 |
| Spare wheel assembly | Standard or foam filled tires |
| Special tools for rock drill | Field kit or complete set |
| Tunnel laser set | |
| Documentation | Extra manuals |
| Extended warranty | 2 years |
| Package: Country specific options | EUR package |
| Package: Anti-freezing | Block heater for engine, heater for hydraulic oil, water circuit flushing with air, antifreeze adding in water circuit. |

*) replaces standard feature

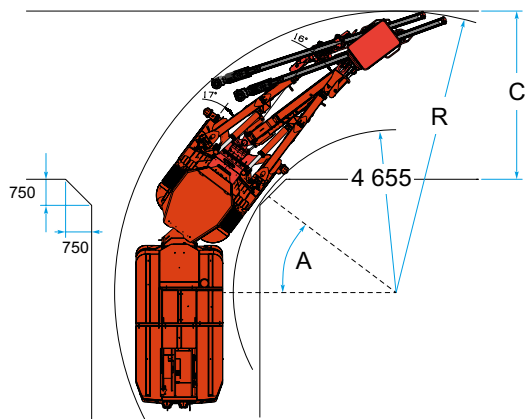


All dimensions in mm

| | TF500-12' | TF500-14' | TF500-16' | TF500-18' | TF500-20' |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| Feed length | 5 330 mm | 5 940 mm | 6 550 mm | 7 160 mm | 7 770 mm |
| Overall length | 14 680 mm | 14 900 mm | 14 900 mm | 15 350 mm | 16 400 mm |
| Overall length with TRR1 | 14 710 mm | 14 930 mm | 14 930 mm | 15 380 mm | 16 430 mm |

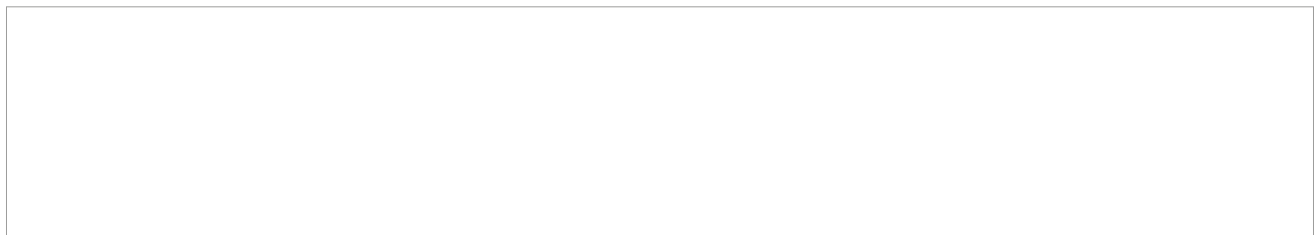


All dimensions in mm



| | Angle (A) | Radius (R) | T-cross (C) |
|-------------------|-----------|------------|-------------|
| DT821 (TF500-12') | mm 37° | 7 940 | 4 730 |
| DT821 (TF500-14') | mm 37° | 7 940 | 4 730 |
| DT821 (TF500-16') | mm 37° | 8 050 | 4 840 |
| DT821 (TF500-18') | mm 37° | 8 190 | 4 980 |
| DT821 (TF500-20') | mm 37° | 8 300 | 5 090 |

All dimensions in mm



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4. SANDVIK DT821 - TUNNELING DRILL