SANDVIK

# Toro® TH330

Safer.
Stronger.
Smarter.



# Technical specification

## Toro® TH330

Toro® TH330 is a narrow 30 metric tonne truck designed for small and medium-sized hard rock mines, fitting in a 3 × 3 meter heading. This underground truck has the same overall width as most 15-ton trucks on the market, but due to its 30 tonne payload capacity, it doubles the productivity. As with all Sandvik underground mining trucks, it is designed to operate fully loaded and at high speeds on long spiral haulage ways with up to 20% gradients.

Available with a standard forward facing, open operator compartment or with an optional forward facing, fully enclosed and air conditioned cabin, Toro® TH330 offers comfort without compromising visibility.

Advantages:
- Narrow size enables operation in 3×3 meter headings
- Excellent payload capacity reduces the need for additional trucks
- Efficient LED lights reduce eye fatigue and risk of collision, while long LED lifetime offers lower cost of ownership compared to halogen lights
- Ground-level daily maintenance for safer service
- Optional ejector box for tight backfill haulage




| Capacities | |
|---|---|
| Maximum payload capacity (SAE heaped 2:1) | 30 000 kg |
| Standard dump box | 16.5 $m^3$ |
| Dump box range | 14–18 $m^3$ |

| Speeds (level/loaded) with Volvo TAD853VE | |
|---|---|
| 1st gear | 5.3 km/h |
| 2nd gear | 9.3 km/h |
| 3rd gear | 16.2 km/h |
| 4th gear | 28.4 km/h |

| Dump box motion times & movements | |
|---|---|
| Discharging time | 11 sec |
| Dumping angle | 65° |

| Operating weights* | |
|---|---|
| Total operating weight | 24 500 kg |
| Front axle | 17 500 kg |
| Rear axle | 7 000 kg |

| Loaded weights* | |
|---|---|
| Total loaded weight | 54 500 kg |
| Front axle | 23 900 kg |
| Rear axle | 30 600 kg |

* Unit weight is dependent on the selected options

| Operational conditions and limits | |
|---|---|
| Environmental temperature | From -30°C to +50°C |
| Standard operating altitude | With engine Volvo TAD853VE from -1500 m to + 3000 m at 25°C without rated power derate |

| Requirements and compliance |
|---|
| Compliance with 3006/95/EC Low voltage directive |
| Compliance with 3004/108/EC Electromagnetic compatibility directive |
| Design based on EN 1889-1. Machines for underground mines. Mobile machines working underground. Safety.<br>Part 1: Rubber tyred vehicles. |
| Electrical system based on IEC 60304-1. Safety of machinery – Electrical equipment of machines – Part 1: General requirements |
| Contains fluorinated greenhouse gases (closed cabin option)<br>Refrigerant R134a under pressure max 38 bar/550 PSI:<br>Filled weight: 1,8 kg<br>$CO_2e$: 2,574 tons<br>GWP: 1430<br>Information based on the F Gas Regulation (EU) No 517/3016 |

| Engine | |
|---|---|
| Diesel engine | Volvo TAD853VE |
| Engine brake | Yes |
| Output | 235 kW (315 hp) @ 2300 rpm |
| Torque | 1310 Nm @ 1450 rpm |
| Number of cylinders | In-line 6 |
| Displacement | 7.7 l |
| Cooling system | Liquid cooled |
| Combustion principle | 4-stroke, direct injection, turbo, after cooler |
| Air Filtration | Dry type |
| Electric system | 24 V |
| Emissions | Tier 3, Euro Stage III A |
| Ventilation rate (Ultra low sulphur diesel) | CANMET 16,700 CFM 7,88 $m^3/s$<br>MSHA particulate index 12,000 CFM |
| Exhaust system | Catalytic converter with muffler |
| Average fuel consumption at 50% load | 34 l/h |
| Fuel tank capacity | 340 l |
| Compatible with paraffinic diesel fuel (EN 15940) | Yes |

| Converter |
|---|
| Dana C8000 Series with Lock up |

| Transmission |
|---|
| Fully automatic transmission with electric shifting system.<br>Four gears forward and two reverse |
| Dana 6000 Series |

| Axles | |
|---|---|
| Front axle | Kessler D91 spring applied hydraulic operated brakes, equipped with standard differential, oscillation |
| Rear axle | Kessler D91 spring applied hydraulic operated brakes, equipped with standard differential, fixed |

| Tires | |
|---|---|
| Tire size (Tires are application approved.) | 23.5 R 25 VSDT L5 |

| Cabin (Cabin option replaces the standard canopy) |
|---|
| ROPS certification according to EN ISO 3471 |
| FOPS certification according to EN ISO 3449 |
| Sealed, air conditioned, over pressurized, noise suppressed closed cabin |
| Sound absorbent material to reduce noise |
| Laminated glass windows |
| Cabin mounted on rubber mounts to the frame to reduce vibrations |
| Air conditioning unit located outside the cabin to reduce noise inside the cabin |
| Cyclone pre-filter for A/C device |
| No high pressure hoses in the operator's compartment |
| Inclinometers to indicate operating angle |
| Emergency exit |
| Floor washable with water to reduce dust |
| Three-point contact access system with replaceable and colour coded handles and steps |
| Remote circuit breaker switch |

| Operator's seat |
|---|
| Low frequency suspension |
| Height adjustment |
| Adjustment according to the operator's weight |
| Fore & aft isolator to minimise vibrations in driving direction |
| Padded and adjustable arm rests |
| Adjustable lumbar support |
| Selectable damping |
| Two-point seat belt |

| Measured sound level | |
|---|---|
| The sound pressure level and sound power level at the operator's compartment have been determined in stationary conditions on high idle and at full load, with engine Volvo TAD853VE | |
| Sound pressure level $L_{pA}$ [dB re 30 µPa] | 86 dB |
| Sound power level $L_{WA}$ [dB ew 1 p W] | 117 dB |

| Measured vibration level | |
|---|---|
| Whole body vibration was determined while operating the truck in a simulated working cycle consisting of loading, unloading and driving with and without load. The value is determined applying standards EN 1032 and ISO 2631-1. | |
| Maximum r.m.s. value $a_w$ [$m/s^2$] | 0,55 (driving with load) |
| VDVW over 15 min period [$m/s^{1.75}$] | 7,54 (driving with load) |

| Dashboard and displays | |
|---|---|
| Sandvik Intelligent Control System | |
| Critical warnings and alarms | Displayed with light |
| Instrument Panel | Electrical gauges, 7" Display |
| Instrument Panel | Illuminated switches |

| Rear and front frame |
|---|
| High strength structure with optimized material thicknesses. Reduced own weight for higher overall hauling capacity and long structural lifetime. Welded steel construction. |
| Adjustable lower bearing |
| Tanks are part of the frame structure |
| Automatic central lubrication |

| Hydraulics | |
|---|---|
| Door interlock for brake hydraulics | |
| Filtration | |
| Oil cooler for hydraulic and transmission oil | Capability up to 50 °C ambient temperature |
| Fittings | ORFS |
| Hydraulic oil tank capacity | 380 l |
| Sight glass for oil level | 2 pcs |

| Steering hydraulics | |
|---|---|
| Full hydraulic power steering, center articulated with double acting steering Cylinders. Open-center system with a gear pump and wheel steer control. | |
| Steering main valve | Pilot operated |
| Steering hydraulic cylinders | 114 mm, 2 pcs |
| Steering pump | Gear pump |

| Dump box hydraulics | |
|---|---|
| Full hydraulic open-center system with one gear pump.<br>Oil flows to the dump box hydraulic system from the pump when the steering system is not in use. Joystick dump box control. | |
| Hydraulic pump | Gear pump |
| Control valve | Pilot operated |
| Main valve | Pilot operated |
| Cylinders | 159 mm, 2 pcs |

| Brakes |
|---|
| Service brakes are spring applied; hydraulically operated multi disc wet brakes on all wheels. Two independent circuits: one for the front and one for the rear axle. Service brakes also function as an emergency and parking brake. Brake system performance complies with requirements of EN ISO 3450, AS2958.1 and SABS 1589 |
| Neutral brake, brake activates after 3 sec in neutral gear |
| Automatic brake activation system, ABA |
| Electrically driven emergency brake release pump |

| | |
|---|---|
| Brake pedal valve | Foot operated pedal, fully modulated |

| Main components | |
|---|---|
| Alternator | 28 V 110 A |
| Batteries | 2 × 12 V, 950 CCA |
| Starter | 24 V 5,5 kW |
| Driving lights | LED lights:<br>4 pcs in front<br>2 pcs in rear |
| Working lights | LED light, 1 pc rear of cabin |
| Reverse camera | Standard |
| Parking, brake and indicator (blinkers) lights | LED lights:<br>2 pcs in front<br>2 pcs in rear |
| Control system | Color display, inbuilt system diagnostics |
| Reverse alarm (CE) | |
| Flashing beacon | |
| Marker lights | |

| Illumination | |
|---|---|
| Illuminance Eav with 2 pieces of 50 W led lights at a distance of 30 m in front of the truck: | |
| Head lights, low beam Eav | 30 lx |
| Illuminance Eav with 2 pieces of 50 W led lights at a distance of 30 m behind the truck: | |
| Reversing lights, low beam Eav | 29 lx |
| Toro® TH330 is compliant with the South African Mine health and safety act 29 of 1996, as the average light intensity in the direction | |

| Fire safety |
|---|
| Portable fire extinguisher, 6 kg (CE) |
| Hot side – cold side design |
| Isolation of combustibles and ignition sources |
| Heat insulation on exhaust manifold, turbo, and isolated exhaust pipe |

| Energy isolation |
|---|
| Lockable main switch, ground level access |
| Emergency stop push buttons according to EN ISO 13850 |
| Pressure release in the radiator cap |
| Automatic discharge for pressure accumulators (brake system and pilot circuit) |
| Frame articulation locking device |
| Mechanical dump box locking device |

| Optional engine | |
|---|---|
| Diesel engine | Volvo TAD883VE |
| Output | 235 kW (320 hp) @ 2200 rpm |
| Emissions | Euro Stage V |
| Engine brake | Yes |
| Ventilation rate<br>(Ultra low sulphur diesel and AdBlue) | MSHA 10,500 CFM<br>CANMET 11,200 CFM |
| Particulate index<br>(Ultra low sulphur fuel, AdBlue) | MSHA 500 CFM |
| $CO_2$ NRTC cycle | 669 g/kWh |
| Exhaust system | Diesel Particulate Filter and Selective Catalytics Reduction |
| Fuel consumption | 30 l/h |
| Compatible with paraffinic diesel fuel (EN 15940) | Yes |

| Options |
|---|
| ANSUL Twin fire suppression system with CHECKFIRE (CE) |
| ANSUL Twin fire suppression system without CHECKFIRE (CE) |
| Arctic package 230 V (preheater for hydr. oil tank, transmission and engine block) |
| CE declaration of conformity |
| Clear flashing beacon |
| Cover grills for lamps |
| Driving direction lights (red/green) |
| Eclipse™ Fire suppression system with auto shutdown, Sustain or Extreme agent delivered separately (CE) |
| Electric filling pump for hydraulic oil |
| Emergency steering (CE) |
| Gear limit (specify max gear to factory) |
| Jump start interface |
| My Sandvik Digital Services Knowledge Box™: on-board hardware |
| Proximity Detection System Interface |
| ROPS/FOPS closed cabin with 2-point seat belt, air conditioning and heater |
| Spare rim |
| Starter isolator |
| Video recorder |
| Water cooled alternator |
| Wheel chocks and brackets |
| Wiggins fuel fill system |
| Wiggins quick fill set for oils and coolant |

| Available boxes | | | | |
|---|---|---|---|---|
| Box capacity SAE heaped 2:1 ($m^3$) * | 16.5 (standard) | 14.0 | 15.0 | 18.0 |
| Material broken density with 90 % fill factor ($t/m^3$) | 2.0 | 2.4 | 2.2 | 1.9 |

* According to SAE 1363 / ISO 6483

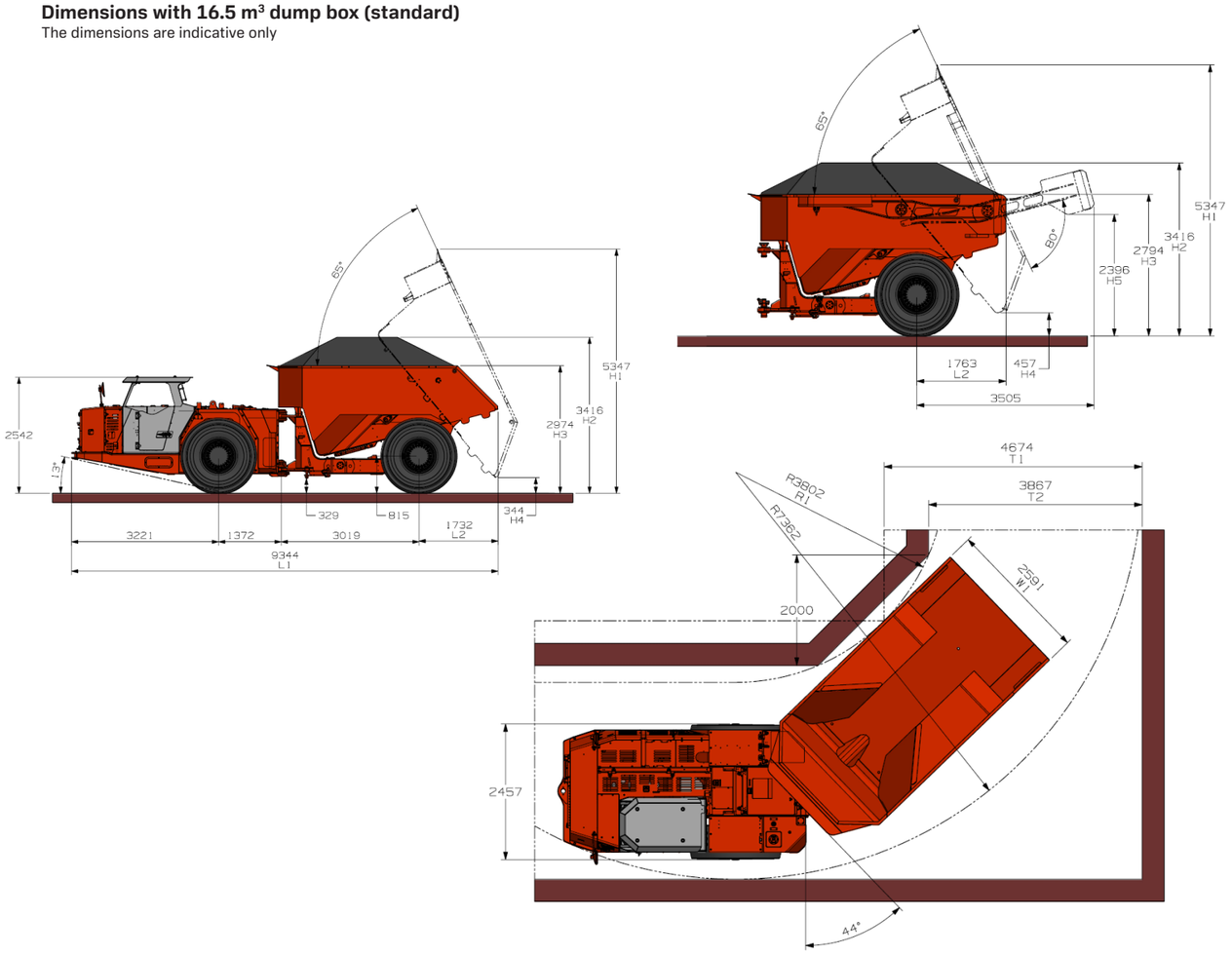
Note that more boxes can be available, please contact your local Sandvik representative for more information.

| Grade performance | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Volvo TAD853VE Tier 3 / Volvo TAD883VE Stage V (3% rolling resistance assumed, with lock-up engaged) | | | | | | | | | | |
| **Empty** | | | | | | | | | | |
| Percent grade | 0.0 | 2.0 | 4.0 | 6.0 | 8.0 | 10.0 | 12.5 | 14.3 | 17.0 | 20.0 |
| Ratio | | | | | 1:12 | 1:10 | 1:8 | 1:7 | 1:6 | 1:5 |
| 1st gear (km/h) | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| 2nd gear (km/h) | 8.4 | 8.4 | 8.3 | 8.3 | 8.2 | 8.1 | 8.1 | 8.0 | 8.0 | 7.9 |
| 3rd gear (km/h) | 14.7 | 14.6 | 14.4 | 14.2 | 14.0 | 13.9 | 13.7 | 13.4 | 12.1 | 10.7 |
| 4th gear (km/h) | 26.2 | 25.6 | 25.1 | 24.5 | 21.7 | | | | | |
| **Loaded** | | | | | | | | | | |
| Percent grade | 0.0 | 2.0 | 4.0 | 6.0 | 8.0 | 10.0 | 12.5 | 14.3 | 17.0 | 20.0 |
| Ratio | | | | | 1:12 | 1:10 | 1:8 | 1:7 | 1:6 | 1:5 |
| 1st gear (km/h) | 4.7 | 4.6 | 4.6 | 4.6 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.3 |
| 2nd gear (km/h) | 8.3 | 8.2 | 8.1 | 7.9 | 7.8 | 7.7 | 6.9 | 6.3 | | |
| 3rd gear (km/h) | 14.4 | 14.0 | 13.7 | 12.0 | | | | | | |
| 4th gear (km/h) | 25.2 | 21.5 | | | | | | | | |

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## Dimensions with 16.5 m³ dump box (standard)

The dimensions are indicative only




| Dimensions | | | | | |
|---|---|---|---|---|---|
| **Dump Boxes** | | | Standard | | |
| Volume SAE heaped 2:1* | ($m^3$) | 14.0 | 16.5 | 15.0 | 18.0 |
| Maximum material density with fill factor of 90% | ($t/m^3$) | 2.4 | 2.0 | 2.2 | 1.9 |
| Overall Machine Length | L1 (mm) | 9282 | 9344 | 9375 | 9375 |
| Rear Axle to Rear of Machine | L2 (mm) | 1670 | 1732 | 1763 | 1763 |
| Dump Position Height Max | H1 (mm) | 5246 | 5347 | 5246 | 5347 |
| SAE Heap Height | H2 (mm) | 3377 | 3416 | 3185 | 3416 |
| Dumpbox Spillguard | H3 (mm) | 2540 | 2794 | 2540 | 2794 |
| Discharge Height | H4 (mm) | 344 | 344 | 469 | 457 |
| Tailgate height | H5 (mm) | | | 2507 | 2396 |
| Dumpbox width | W1 (mm) | 2591 | 2591 | 2988 | 2988 |
| Dumpbox turn radius | R1 (mm) | 3804 | 3802 | 3680 | 3685 |
| Minimum tunnel width | T1 (mm) | 4672 | 4674 | 4760 | 4757 |
| Tunnel width | T2 (mm) | 3865 | 3867 | 3960 | 3956 |

* According to SAE 1363/ISO 6483