

SANDVIK

TORO™ TH430 UNDERGROUND TRUCK



RELIABLE AND PRODUCTIVE

Designed for the underground

Toro™ TH430 underground truck is a reliable, hard-working dump truck specifically designed for underground conditions. With its robust structure, compact size and fit-for-purpose components, the truck is tailored to meet the productivity targets in challenging environments. The truck's new heavy-duty axles, using limited slip differentials to maintain traction, improve availability and reduce total costs of ownership.

High payload capacity and ramp speeds

The equipment's low overall weight, 30 tonne payload capacity and high ramp speeds enable increased productivity. The standard Tier 2 engine with a gross power of 310 kW makes it the most powerful mining truck in its size class. Low equipment weight and high power enable high tramping speeds up a decline, shortening cycle times. High engine peak torque and torque rise allow less downshifting and better acceleration, while the transmission automatic gear shifting and torque converter lock-up ensure fast speeds. Peak torque delivered at low engine rpm improves fuel economy and reduces noise. An optional Stage V engine provides reduced emissions through a diesel particulate filter (DPF), reduces the amount of exhaust particles, helping the mines improve air quality underground. Additionally, Stage V trucks can operate with up to 3% reduced fuel consumption compared to the lower Stages.



Maximum utilization of rated payload

To ensure maximum utilization of the rated payload on every trip, Toro™ TH430 dump truck can be equipped with the Integrated Weighing System (IWS) for trucks by Sandvik. For an accurate result, IWS considers the environmental temperature and the truck's inclination angle and it is equipped with three-point measurement of the weight in the box. Real time weighing and signal lights – red, orange and green – advise the truck operator to ensure the rated capacity is reached before moving forward.

In addition to accurately measuring the payload when loading the box, the IWS records the results to My Sandvik Digital Services Knowledge Box™. The Knowledge Box™ can transfer this production monitoring data through Wi-Fi connection for access via My Sandvik internet portal. Alternatively, data can be downloaded manually in the operator's compartment onto a USB stick.

Full range of box options

Sandvik dump boxes are designed with extra volume, using a 90% fill factor in the box selection ensures the truck can be loaded to its full 30 tonne capacity, and reduces spillage during tramming. The smooth box design improves material flow when dumping. Reinforced steel structures use wear resistant steel for extended box lifetime. An optional ejector box is available for backfilling and unloading in areas with restricted dump height.



SUPERIOR OPERATOR ENVIRONMENT & SAFETY

PREMIUM ERGONOMICS

The modern cabin of the Toro™ TH430 dump truck offers premium operator ergonomics. Low noise levels in the cabin, a comfortable seat with low frequency pneumatic suspension to perfectly match the operator weight, adjustable steering wheel (tilt and telescopic) and arm rests as well as an air conditioning system supplying fresh air, all meant help to reduce operator fatigue.

FOR OPERATOR SAFETY

The cabin is noise resistant and uses dust resistant upholstery materials, is ROPS and FOPS certified to protect the operator in case of roll over or falling objects, has laminated safety glass windows, emergency exits, and illuminated cabin entrance with three-point contact handles and anti-slip steps. The door system features a magnetic interlock switch, which automatically applies brakes when the cabin door is opened.

EXCELLENT VISIBILITY

A 7" LCD color display with adjustable contrast and brightness has all the needed information and alarms on one display, giving the operator more time to keep

eyes on the road. Large windows and mirrors provide good visibility from the cabin, supported by efficient, adjustable LED lights as standard. To further improve operator visibility, the truck is equipped with reversing and right-hand side cameras as standard. For cold conditions, an optionally available cold conditions package helps to keep windows and mirrors free of ice and mist.

FIRE SAFETY

Significant efforts have been made to achieve top-level fire safety in the Toro™ TH430 dump truck. These include e.g. isolation of combustibles and ignition sources, heat insulation on the exhaust manifold and turbo, and insulated exhaust pipe.

For fire suppression, Eclipse™ from Sandvik is available as an option. The Eclipse™ equipped with Sustain fire suppression agent is a sustainable choice, as it is the world's first fluorine-free fire suppression liquid for mobile equipment. For environmental conditions where the temperature may drop under zero, the Eclipse™ Extreme provides fire protection.



DATA & CONNECTIVITY

Equipped with Sandvik Intelligent Control System as standard, Toro™ TH430 dump truck answers today's demands for data, connectivity and digitalization.

KNOWLEDGE BOX™

The Knowledge Box™ onboard Toro™ TH430 dump truck transfers monitoring data through a Wi-Fi connection to the My Sandvik internet portal for visualization of fleet health, productivity and utilization.

OPTIMINE®

OptiMine® is the most comprehensive solution for optimizing underground hard rock mining production and processes. It integrates all assets and people - including non-Sandvik equipment - delivering descriptive and predictive insights to improve operations. OptiMine® is interoperable and able to connect to any system and technology, including Newtrax IoT devices, providing a real-time view of mining operations. It is an open and scalable modular suite that gives you flexibility to expand and work with a full range of equipment, systems and networks.

PROXIMITY DETECTION SYSTEM INTERFACE

A Proximity Detection System (PDS) interface option is also available on Toro™ TH430 dump truck for mines to interface with their site PDS system. The PDS interface offers easy installation and connection to the Sandvik Intelligent Control System with the capability to slow down and stop the truck on the signal from a PDS system.

MY SANDVIK DIGITAL SERVICE SOLUTIONS 365

My Sandvik Digital Service Solutions are designed to help you maximize your productivity, operational efficiency and safety. Once activated, the Knowledge Box™ on board Toro™ TH430 dump truck collects and transfers equipment data into easy-to-use knowledge about your fleet's performance in the form of dashboards.



EASE OF MAINTENANCE

SMART MAINTENANCE

To minimize the need to move around the machine or use special tools, the 7" touch screen color display in the operator's compartment provides service information, easy system diagnostics and alarm log files, as the Sandvik Intelligent Control System monitors the equipment health and provides early warnings. The control system user interface is available in 17 different languages.

An automatic brake test with diagnostics and logging can also be performed from the display.

EASY TO CLEAN COOLERS

Toro™ TH430 dump truck has an easy-to-clean engine cooler with swing out fans to allow effective cleaning. The aluminium cooler is designed for harsh corrosive environment and high ambient temperatures. Corrosion resistant brass tubes are included in the optional harsh condition package.



GROUND LEVEL DAILY MAINTENANCE

The truck is designed for ground level daily maintenance with smart placement of key service areas and maintenance access. Standard features improving work safety include lockable main switch, articulation lock, box support and wheel chocks, among others. An efficient Power Core engine filter is housed well within the frame for impact protection and it utilizes an ejector valve system for increased filter lifetime. An optional fast filling system for fuel and oils increases equipment availability by reducing fueling time by up to 80% as well as eliminating fuel and oil spills.

SAFETY ON TOP

When getting to the top of the truck is necessary, the access system with 3-point contact high contrast handles and anti-slip steps provides a steady grip. The top covers are perforated to reduce risks for slipping and where perforation is not practical, anti-slip tapes are fitted.

Further, the truck can be equipped with rails to improve safety on top of the equipment. The rails are folded down for driving and set up for service work. Safety rails are recommended for all conditions.



OPTIMIZED GREASE CONSUMPTION

The standard Automatic Central Lubrication System optimizes grease consumption and extends the life of the bushes and bearings. Activated by Sandvik Intelligent Control System when park brake is released, hard to reach areas are well lubricated and service time is reduced.

MAINTENANCE KITS AND PERFORMANCE FLUIDS

Tailor-made maintenance kits include all relevant parts and other materials for planned maintenance. Sandvik Performance Fluids preserve the machine's high performance. Smooth operation throughout its lifetime can be ensured with Sandvik Long-Life Engine, Transmission and Hydraulic Oils, which are available in different viscosity grades.

LOW COST OF OWNERSHIP

ROBUST AND RELIABLE POWERTRAIN

This truck is equipped with new heavy-duty axles to improve availability, extend axle lifetime and reduce total costs of ownership. Compared to the previous model, the new axles provide higher spindle capacity, higher drive head torque capacity, and higher wheel bearing capacity.

FEA OPTIMISED FRAMES

Toro™ TH430 truck welded steel box structures used in the frame provide strong resistance to shock loads and are optimized to reduce stresses and extend frame lifetime. The frames are computer designed using Finite Element Analysis (FEA) and made of high strength structural steel for superior strength to weight ratio.

LOGLIFE STEEL PIPING

Extensive use of hydraulic steel piping throughout the truck delivers longer lifetime and easier maintenance access than hydraulic hoses.

SUPERIOR BRAKING POWER

As all Sandvik trucks, also Toro™ TH430 truck is equipped with spring applied hydraulic release brakes for safer braking. An automatic electric retarder is available as an option to prevent brake hydraulics from heating and to reduce brake wear. Further, top speeds can be reduced by an optional gear limiting to improve safety in narrow tunnels and on rough roads.

FUEL EFFICIENT TIER 2 ENGINE FOR HIGH ALTITUDES

A robust 310 kW Tier 2 Volvo engine with catalytic purifier and muffler delivers long engine lifetime in underground conditions. This fuel efficient 13 litre engine is also calibrated for use in high altitude conditions to maintain performance, low emissions and reliability.

LOW EMISSION STAGE V ENGINE

For areas where Ultra Low Sulphur fuel is available, the 13-liter, 315 kW engine Stage V engine from Volvo offers reduced emissions through a diesel particulate filter (DPF). Stage V engines include a reduced particles in diesel exhaust, helping the mines improve air quality underground. Additionally, the Stage V trucks can operate with up to 3% reduced fuel consumption compared to the lower Stages. It also can use renewable paraffinic diesel fuels that meet the EN 15940 standard, and can use a mix of diesel and paraffinic fuels without any issues.

EFFICIENT COOLING FOR INCREASED PERFORMANCE

Separate brake, hydraulic and transmission cooling provides increased performance in hot conditions. A more efficient cooling circuit leads to lower oil temperatures, reducing stress on the system, extending component lifetimes, and minimizing oil leaks.



SANDVIK 365 PARTS & SERVICES

PROUDLY KEEPING YOU ON TRACK!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your truck'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.

BENEFIT FROM OUR 365 SOLUTIONS

Our Sandvik 365 Parts & Service solutions will enable your equipment to function safely at peak condition and allow you to achieve the most demanding production targets. Our aftermarket portfolio attends all possible needs throughout your equipment's lifecycle, ranging from the most basic and traditional offerings to the most sophisticated ones.

YOUR EQUIPMENT UPTIME IS OUR FOCUS – SANDVIK 365 COMPONENT SOLUTIONS

We have all your key components available to you under our various commercial offerings to suit your needs. Whether you have an ad-hoc failure or you are planning your maintenance in advance – we can assist, manage your components to maximize your uptime.

MAXIMIZE YOUR PRODUCT LIFETIME WITH SANDVIK 365 REBUILD SOLUTIONS

One of the most effective ways to optimize equipment lifecycle lies in the quality and range of the Sandvik Rebuild Solutions. Planning and executing rebuilds at optimal intervals helps you keeping your equipment's operating cost and productivity on track. A rebuild by the manufacturer can optimize your total cost of ownership (TCO) and increase the level of predictability around our fleet lifecycle.

CHOOSE FROM OUR RANGE OF SERVICE AGREEMENTS

With Sandvik Service Agreements, you can improve productivity and minimize unplanned downtime by making use of our expertise, systems and processes. They can be adapted to the specific level of support you require – helping you proactively manage your fleet and avoid any unexpected surprises.

GAIN PRODUCTIVITY THROUGH CONNECTIVITY

365 My Sandvik Digital Service solutions will provide you with visualization of fleet utilization, productivity, safety and health on 24/7 basis. The digital service dashboards can be accessed through the My Sandvik customer portal, where you can subscribe to My Sandvik Insight or Productivity. This way, My Sandvik Digital Service Solutions enable you to minimize unplanned downtime and set exact targets for improvement.



TECHNICAL SPECIFICATION

TORO™ TH430

Toro™ TH430 is a reliable, hard-working dump truck specifically designed for underground conditions. With its robust structure, compact size and fit-for-purpose components, the truck is tailored to meet the productivity targets in challenging environments. The truck's new heavy-duty axles, using limited slip differentials to maintain traction, improve availability and reduce total costs of ownership.

An enclosed and air conditioned cabin is standard for increased operator safety and comfort. The cabin uses dust and noise resistant upholstery materials and is ROPS and FOPS certified to protect the operator in case of roll over or falling objects.

Equipped with Sandvik Intelligent Control System and a 7" display as standard, Toro™ TH430 dump truck answers to today's demands for data, connectivity and digitalization. The touch screen color display in the cabin provides service information, easy system diagnostics and alarm log files, as the Sandvik Intelligent Control System monitors the equipment health and provides early warnings.

Toro™ TH430 is an ideal choice for:

- Ramp or level production haulage in medium sized mines
- Mine development projects in medium and large mines
- Tunneling projects with restricted headroom
- Three pass loading with LH410 loader

CAPACITIES

Maximum payload capacity (SAE heaped 2:1)	30 000 kg
Standard dump box	14.5 m ³
Dump box range	14 - 18 m ³

SPEEDS (LEVEL/LOADED) with Volvo TAD1342VE Tier 2

1st gear	6.6 km/h
2nd gear	11.7 km/h
3rd gear	20.5 km/h
4th gear	36.6 km/h

DUMP BOX MOTION TIMES & MOVEMENTS

Discharging time	14 sec
Dumping angle	61°

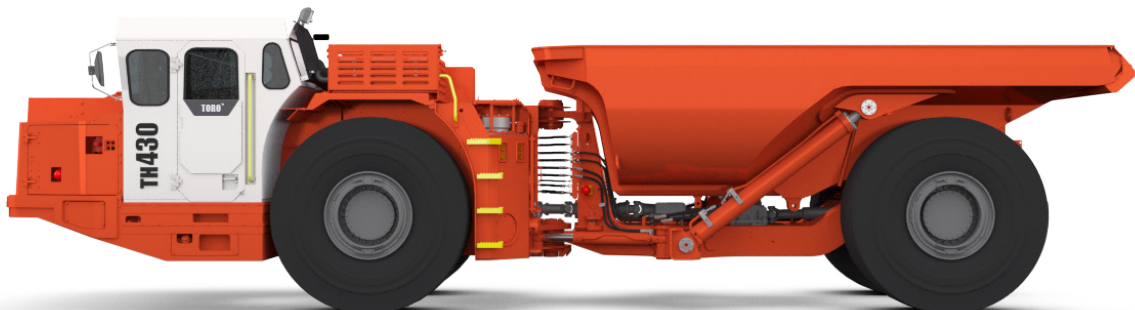
OPERATING WEIGHTS *

Total operating weight	29 500 kg
Front axle	21 900 kg
Rear axle	7 600 kg

LOADED WEIGHTS *

Total loaded weight	59 500 kg
Front axle	29 200 kg
Rear axle	30 300 kg

* Unit weight is dependent on the selected options



OPERATIONAL CONDITIONS AND LIMITS

Environmental temperature	From -20°C to +50°C
Standard operating altitude	With engine Volvo TAD1342VE from -1500 m to +2000 m at 25 °C without rated power derate

REQUIREMENTS AND COMPLIANCE

Compliance with 2006/95/EC Low voltage directive
Compliance with 2004/108/EC Electromagnetic compatibility directive
Compliance with 2006/42/EC Machinery directive (Equipment for EU area, achieved with relevant options)
Design based on EN 1889-1. Machines for underground mines. Mobile machines working underground. Safety. Part 1: Rubber tyred vehicles.
Design based on MDG 15. Guideline for mobile and transportable equipment for use in mines. (Equipment for Australia, achieved with relevant options)
Electrical system based on IEC 60204-1. Safety of machinery – Electrical equipment of machines – Part 1: General requirements
CONTAINS FLUORINATED GREENHOUSE GASES (closed cabin option) Refrigerant R134a under pressure max 38 bar/550 PSI: Filled weight: 2,0 kg CO2e: 2,860 tons GWP: 1430 Information based on the F Gas Regulation (EU) No 517/2016

POWER TRAIN

ENGINE

Diesel engine	Volvo TAD1342VE Tier 2
Output	310 kw (416 hp) @ 2100 rpm
Torque	2005 Nm @ 1260 rpm
Number of cylinders	In-line 6
Displacement	12.8 l
Cooling system	Liquid cooled
Combustion principle	4-stroke, direct injection, turbo, after cooler
Air Filtration	Dry type
Electric system	24 V
Emissions	Tier 2, Euro Stage II
Ventilation rate (Ultra low sulphur diesel)	MSHA 18,500 CFM Ventilation Rate CANMET 27,000 CFM
Particulate index (Ultra low sulphur diesel)	MSHA Particulate Ventilation Index 10,500 CFM
Exhaust system	Catalytic converter with muffler
Average fuel consumption at 50% load	40 l/h
Fuel tank refill capacity	530 l
Compatible with paraffinic diesel fuel (EN 15940)	Yes

TRANSMISSION

Fully automatic transmission with electric remote shifting system. Four forward and two reverse gears.
Dana 6000 Series

CONVERTER

Dana C8000 Series with Lock up

AXLES

Front axle	Kessler D102 series spring applied hydraulic operated brakes, equipped with standard differential, oscillation
Rear axle	Kessler D102 series, standard differential, fixed

TIRES

Tire size (Tires are application approved. Brand and type subject to availability.)	26.5 R 25 E4 **
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HYDRAULICS

Door interlock for brakes
Filling pump for hydraulic oil
Hydraulic oil tank capacity 265 l
Oil cooler for hydraulic and transmission oil capability up to 50°C ambient temperature
ORFS fittings
Sight glass for oil level, 2 pcs

STEERING HYDRAULICS

Fully hydraulic, center articulad, power steering with two double acting cylinders. Closed-center system with a load sensing piston type pump and pilot operated orbital wheel steering.	
Steering main valve	Pilot operated
Steering hydraulic cylinders	100 mm, 2 pcs
Steering pump	Variable displacement piston pump

DUMP BOX HYDRAULICS

Fully hydraulic system, equipped with variable displacement piston pump. Oil flows to box hydraulic system from the steering hydraulics. Oil flow from the brake circuit pump is divided to the brake system and oil cooler motor.	
Control valve	Solenoid operated
Cylinders	140 mm, 2 pcs
Hydraulic pump	Variable displacement piston pump
Main valve	Solenoid operated

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.

Automatic brake activation system, ABA
Brake oil tank capacity 76 l
Electrically driven emergency brake release pump
Foot operated brake pedal, fully modulated
Neutral brake

OPERATOR'S COMPARTMENT

Toro™ TH430 dump truck cabin uses dust and noise resistant upholstery materials and is ROPS and FOPS certified to protect the operator in case of roll over or falling objects. The cabin includes illuminated entrance with three-point contact handles and anti-slip steps, as well as emergency exits. In addition, the cabin is mounted on rubber mounts to reduce whole body vibration.

CABIN

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

OPERATOR'S SEAT

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

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], driving with load	0,64
VDV _w over 15 min period [$m/s^{1.75}$], driving with load	5,9

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 TAD1342VE.

Sound pressure level L_{pA} [dB re 20 μ Pa]	81 dB
Sound power level L_{WA} [dB ew 1 p W]	117 dB

CONTROL SYSTEM, DASHBOARD AND DISPLAYS

7" display with adjustable contrast and brightness
Critical warnings and alarms displayed as text and with light
Instrument panel with illuminated switches
My Sandvik Digital Services Knowledge Box™ on-board hardware
Sandvik Intelligent Control System

FRAME

REAR AND FRONT FRAME

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

ELECTRICAL EQUIPMENT

MAIN COMPONENTS

Alternator	24 V, 150 A
Batteries	2 X 12V, 950 CCA
Starter	24 V, 7kW
Driving lights	LED lights: 4 pcs in front 2 pcs in rear
Working lights	LED lights: 1 pc in rear of cabin 1 pc in side of unit
Parking, brake and indicator (blinkers) lights	LED lights: 2 pcs in front 2 pcs in rear
Control system	5,7" Color display, 3 modules, inbuilt system diagnostics
Reverse alarm (CE)	
Flashing beacon	
Reverse camera	



INCLUDED SAFETY FEATURES

FIRE SAFETY

Heat insulation on exhaust manifold, turbo, and isolated exhaust pipe
Hot side - cold side design
Isolation of combustibles and ignition sources
Portable fire extinguisher, 12 kg (CE)

ENERGY ISOLATION

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

DOCUMENTATION

STANDARD MANUALS

Operator's Manual	English and other EU languages
Maintenance Manual	English and other EU languages
Parts Manual	English
Service and Repair Manual	English
ToolMan	2 x USB stick in pdf format, includes all the manuals
Decals	English and other EU languages

OPTIONS

ANSUL Twin fire suppression system (CE)
Blue or clear flashing beacon
CE Declaration of conformity

Cold climate package (incl. cabin heater, cabin window defroster and side mirrors with defrost system)
Control system tool kit
Cover grills for lamps
CRN pressure accumulator
Driving direction lights (red / green)
Electrical retarder TELMA for Volvo TAD1362VE and TAD1342VE engines
Emergency steering (CE)
Fire suppression system Eclipse™ with auto shutdown (CE)
Gear limit
Harsh conditions package
Integrated Weighing System (IWS)
Jump start interface
Lower cabin height, 2445 mm
Proximity Detection System Interface
Safety rails
Spare rim 22.00-25/3.0 (for tyres 26.5R25)
Tyre pressure monitoring system
Wiggins fuel filling system
Wiggins quick filling set for fuel and oils (hydraulic, engine and transmission)

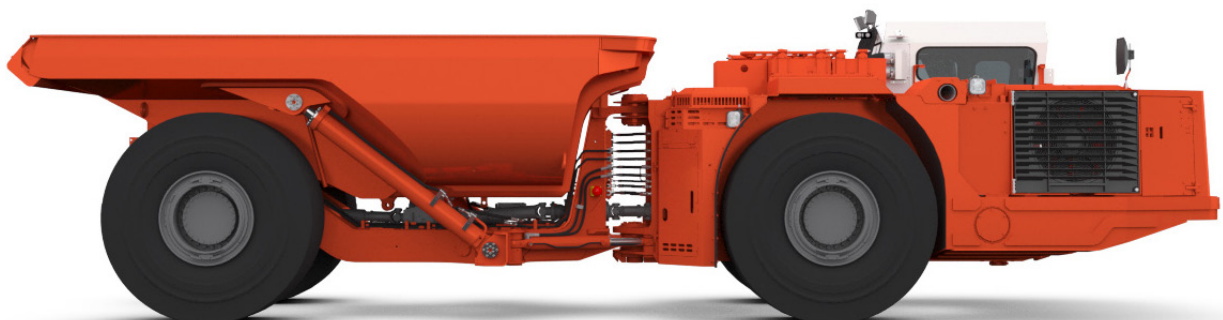
OPTIONAL ENGINE

Diesel engine	Volvo TAD1382VE
Output	315 kW (428 hp) @ 1900 rpm
Emissions	Euro Stage V
Engine brake	Yes
Ventilation rate (Ultra low sulphur diesel and AdBlue)	MSHA 14,000 CFM CANMET 15,500 CFM
Particulate index (Ultra low sulphur fuel, AdBlue)	MSHA 500 CFM
CO2 NRTC cycle	683 g/kWh
Exhaust system	Diesel Particulate Filter and Selective Catalytic Reduction
Fuel consumption	39 l/h

AVAILABLE BOXES

Box capacity SAE heaped 2:1 (m ³) *	14.5 (standard)	16	18	14 m ³ (ejector)
Material broken density with fill factor 90% (t/m ³)	2.3	2.1	1.9	1.9

* According to SAE 1363 / ISO 6483.



GRADE PERFORMANCE (STANDARD ENGINE)

Volvo TAD1342VE, Tier 2 (3% rolling resistance, 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
					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.5	6.5
2nd gear (km/h)	12.0	11.9	11.9	11.8	11.7	11.7	11.6	11.5	11.5	11.3
3rd gear (km/h)	21.0	20.8	20.6	20.4	20.2	19.8	17.5	16.1	14.2	
4th gear (km/h)	37.5	36.8	36.2	30.3	25.6					

Loaded

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	6.7	6.6	6.6	6.6	6.5	6.5	6.4	6.4	6.4	5.8
2nd gear (km/h)	11.9	11.8	11.6	11.5	11.4	10.2	9.0	8.1		
3rd gear (km/h)	20.7	20.3	18.6	15.4						
4th gear (km/h)	36.5	27.7								

GRADE PERFORMANCE (OPTIONAL ENGINE)

Volvo TAD1382VE, Stage V (3% rolling resistance, 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
					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	6.1	6.1	6.1	6.1	6.0	6.0	6.0	6.0	6.0	5.9
2nd gear (km/h)	10.9	10.9	10.8	10.8	10.7	10.6	10.6	10.5	10.5	10.4
3rd gear (km/h)	19.1	19.0	18.8	18.6	18.4	18.3	17.4	16.1	14.3	
4th gear (km/h)	34.2	33.6	33.0	30.2	25.7					

Loaded

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	6.1	6.1	6.0	6.0	5.9	5.9	5.9	5.8	5.8	5.7
2nd gear (km/h)	10.8	10.7	10.6	10.5	10.4	10.1	9.0	8.2		
3rd gear (km/h)	18.9	18.5	18.2	15.5						
4th gear (km/h)	33.3	27.7								

DIMENSIONS

Dump boxes			STD		EJECTOR
Volume SAE heaped 2:1 *	(m ³)	14.5	16	18	14
Maximum material density with 90% fill factor	(t/m ³)	2.3	2.1	1.9	1.9
Overall machine length	L1 (mm)	10 259	10 401	10 453	10 449
Rear axle to rear of machine	L2 (mm)	1662	1805	1856	1719
Dump position height max	H1 (mm)	5 418	5 628	5 700	-
SAE heap height	H2 (mm)	3 029	3 083	3 198	3 248
Dumpbox spillguard	H3 (mm)	2 358	2 412	2 562	2 598
Discharge height	H4 (mm)	607	451	412	827
Ejector box tailgate height	H5 (mm)	-	-	-	2 113
Dumpbox width	W1 (mm)	2 948	2 948	2 848	2 860
Dumpbox inner turning radius	R1 (mm)	4 544	4 544	4 597	4 595
Minimum tunnel width	T1 (mm)	5 349	5 292	5 255	5 255
Tunnel width	T2 (mm)	4 740	4 776	4 712	4 713

* According to SAE 1363 / ISO 6483

DIMENSIONS WITH 14.5 M³ BOX

Dimensions are shown in millimeters and based on standard vehicle configuration (dump box for 2.3 t/m³ material, heaped volume definition with 44 mm tire deflection, unloaded. The dimensions are indicative only.

