SANDVIK

Toro® TH430

Safer.
Stronger.
Smarter.

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 Toro® LH410 loader

Capacities	
Maximum payload capacity (SAE heaped 2:1)	30 000 kg
Standard dump box	14.5 m³
Dump box range	14 – 18 m³

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 CO_2e: 2,860 tons GWP: 1430 Information based on the F Gas Regulation (EU) No 517/2016

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 **

Hydraulics
Door interlock for brakes
Filtration
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, brake activates after 3sec in neutral gear

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 µPa]	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

Supports 3G, 4G, LTE and WLAN data transfer

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

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	7" Color display, 3 modules, inbuilt system diagnostics
Reverse alarm (CE)	
Flashing beacon	
Reverse camera	

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

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)
Arctic package (preheater for hydr. oil tank, transmission and engine block)
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
Direct feed for beacon

Options
DPF exhaust system, HJS (not available with Stage V)
Driving direction lights (red / green)
Electrical retarder TELMA for Volvo TAD1342VE engine
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
Seat, comfort, mid backrest with two-point seat belt
Spare rim 22.00-25/3.0 (for tyres 26.5R25)
Starter isolator
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
CO_2 NRTC cycle	683 g/kWh
Exhaust system	Diesel Particulate Filter and Selective Catalytics Reduction
Fuel consumption	39 l/h
Compatible with paraffinic diesel fuel (EN 15940)	Yes

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.

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

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								

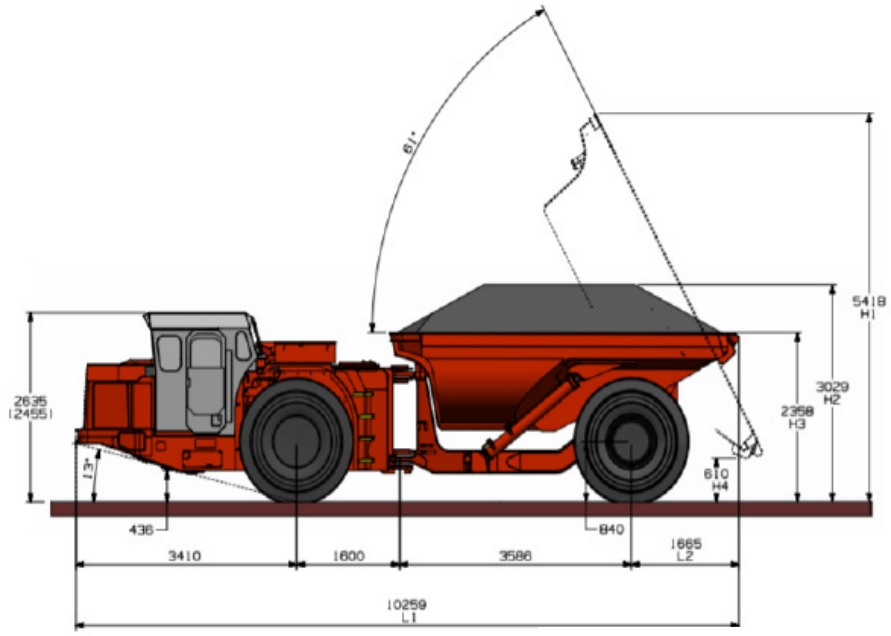
Grade performance (optional engine)										
Volvo TAD1382VE, Stage V (3% rolling resistance, with lock-up engaged)										
Empty										
Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	6.1	6.1	6.1	6.1	6.0	6.0	6.0	6.0	6.0	5.9
2nd gear (km(h)	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								

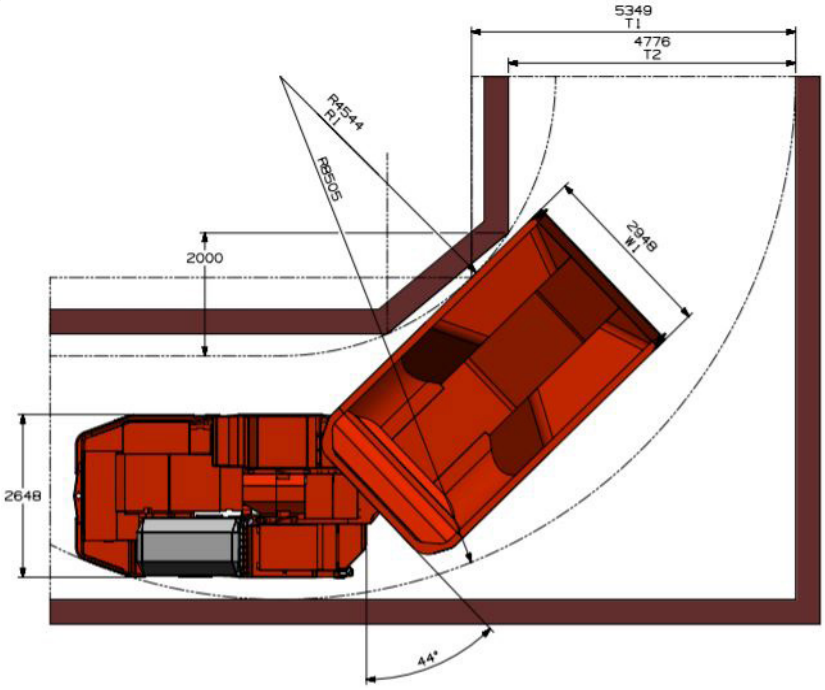
Dimensions					
Dump boxes		**Std**			**Ejector**
Volume SAE heaped 2:1 *	**(m^3)**	**14.5**	**16**	**18**	**14**
Maximum material density with 90% fill factor	(t/m^3)	2.3	2.1	1.9	1.9
Overall machine length	L1 (mm)	10 259	10 401	10 453	10 449
Rear axle to rear of machine	L2 (mm)	1662	1805	1856	1719
Dump position height max	H1 (mm)	5 418	5628	5 700	-
SAE heap height	H2 (mm)	3 029	3083	3 198	3 248
Dumpbox spillguard	H3 (mm)	2 412	2412	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	2948	2 848	2 860
Dumpbox inner turning radius	R1 (mm)	4 544	4544	4 597	4 595
Minimum tunnel width	T1 (mm)	5 349	5292	5 255	5 255
Tunnel width	T2 (mm)	4 740	4776	4 712	4 713

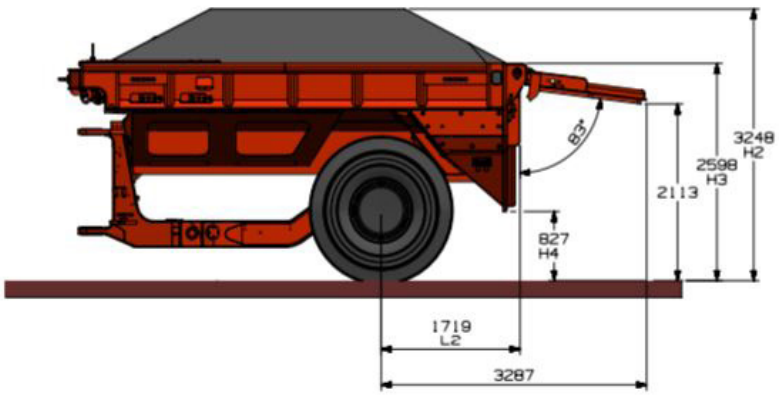
* According to SAE 1363 / ISO 6483

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.







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