

**SANDVIK**

TORO™ TH545i  
SAFER. STRONGER. SMARTER.



# INCREASED PRODUCTIVITY

## Higher payload capacity and ramp speeds

A low overall weight, 45-tonne payload capacity and high ramp speeds enable increased productivity in Toro™ TH545i truck. These changes provide a 12.5% increase in payload capacity from its predecessor, Sandvik TH540. The standard EPA Tier 2 engine with a gross power of 450kW makes it the most powerful mining truck in its size class. High engine peak torque and torque rise requires less downshifting and better acceleration. Peak torque is delivered at a low engine rpm for better fuel economy and reduced noise. The low machine weight and higher power allows for high tramming speeds up a decline, shortening cycle times.

## Achieve full capacity with a wide range of box options

Sandvik dump boxes are designed with extra volume when selecting the right box for your broken material density. Using a 90% fill factor in box selection ensures the truck can be loaded to its full 45 tonne capacity and reduces spillage during tramming. The smooth box design improves material flow during dumping. While the reinforced steel structure uses wear resistant steel for extended box lifetime. An optional ejector box is available for backfill and unloading in areas of restricted dump height.

## Production monitoring

To ensure maximum utilization of the rated payload on every trip, Toro™ TH545i truck can be equipped with Sandvik's Integrated Weighing System (IWS) for trucks. For an accurate result, the IWS considers the environmental temperature and the truck's inclination angle, and it is equipped with three-point measurement of the loaded weight in the box. Real time weighing and signal lights – red, orange and green – advise the loader 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 a Wi-Fi connection for customer access via My Sandvik internet portal. Alternatively, data can be downloaded manually in the operator's compartment onto a USB stick.





# READY FOR DIGITALIZATION

Toro™ TH545i truck has been optimized for use with AutoMine®, Sandvik's robust mining automation system for increased safety, productivity and lower costs.

## **AUTOMINE®**

AutoMine® is the industry leader in automation for underground loaders and trucks. This high-performing, comprehensive solution is working around the world, backed by Sandvik experts across the globe.

AutoMine® readiness is available for Toro™ TH545i truck for retrofitting later in the truck's lifetime. All sensors have increased protection from rock fall. With AutoMine®, a fleet of Toro™ TH545i trucks is converted into a high performing autonomous production system, providing significant safety and productivity improvements for mine operations.

## **OPTIMINE®**

OptiMine® is the most comprehensive solution for optimizing underground hard rock mining production and processes. It integrates all assets and people - including Sandvik and 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.

## **KNOWLEDGE BOX™**

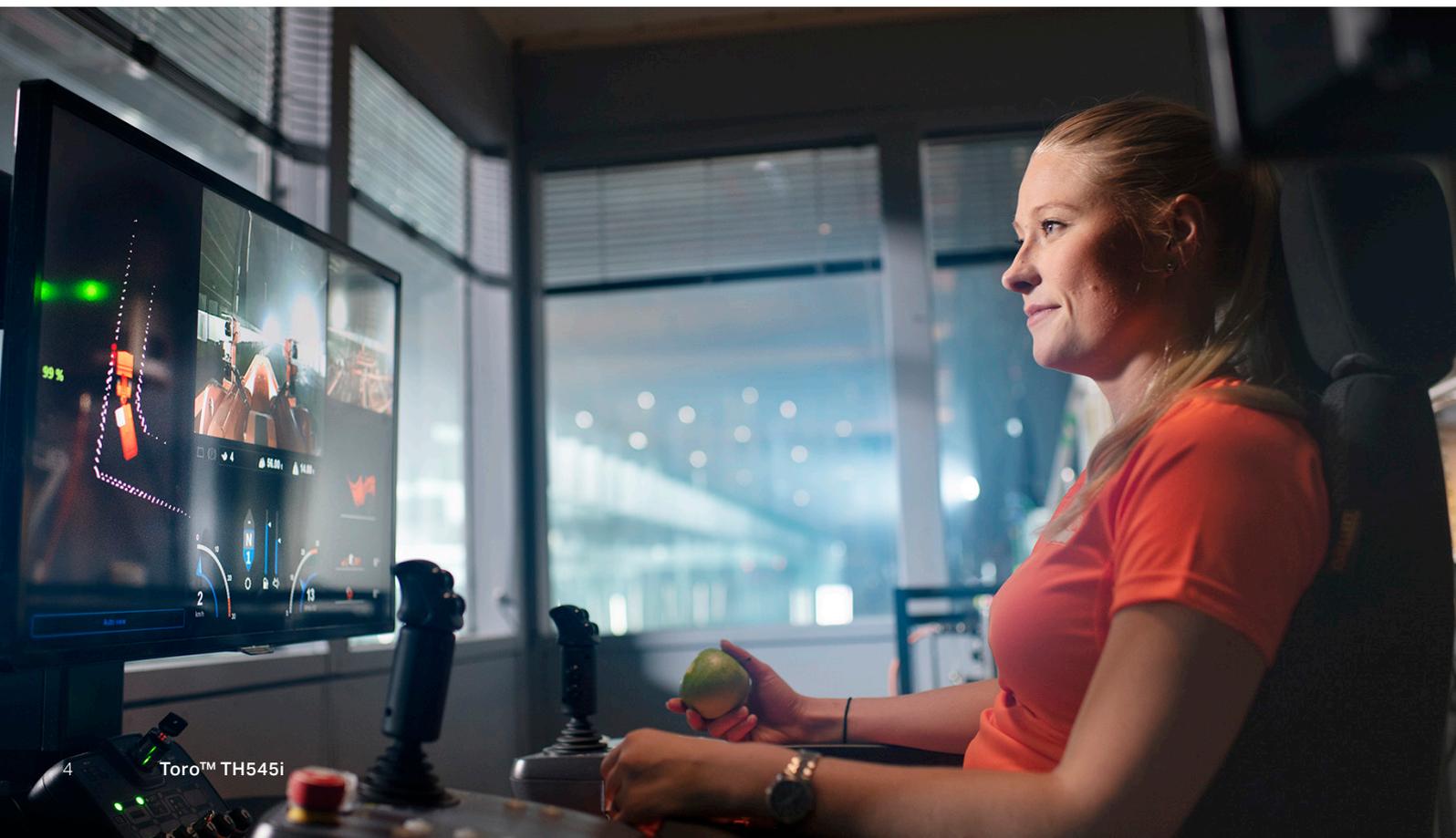
The Knowledge Box™ onboard Toro™ TH545i truck transfers monitoring data through a Wi-Fi connection to the My Sandvik internet portal for visualization of fleet health, productivity and utilization. Transferred data can also be used by OptiMine®, an analytics and process optimization suite to improve mining process efficiency.

## **PROXIMITY DETECTION SYSTEM INTERFACE**

A Proximity Detection System (PDS) interface option is also available on the Toro™ TH545i 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™ TH545i truck collects and transfers equipment data into easy-to-use knowledge about your fleet's performance in the form of dashboards.



# SUPERIOR OPERATOR ENVIRONMENT & SAFETY



## PREMIUM ERGONOMICS

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

## EXCELLENT VISIBILITY

Large windows and mirrors provide good visibility from the cabin, supported by efficient, adjustable LED lights, which are standard. To further improve operator visibility, the truck is equipped with reversing camera as standard. For cold conditions, an optional arctic package helps to keep windows and mirrors free of ice and mist.

## FOR OPERATOR SAFETY

The cabin uses dust and noise resistant upholstery materials, is ROPS and FOPS certified to protect the operator, has laminated safety glass windows, emergency exits, and an 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.

## FIRE SAFETY

Significant efforts have been made to achieve top-level fire safety in the Toro™ TH545i dump truck. These include isolation of combustibles and ignition sources, heat insulation on exhaust manifold and turbo, a starter isolation switch and insulated exhaust pipe.

For fire suppression, Eclipse™ from Sandvik is available as an option. The Eclipse™ equipped with Sustain fire suppression system 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.

Ansul® LVS fire suppression system is an alternative liquid system. The liquid cuts off oxygen supply to the fire and provides cooling for equipment with super-heated surface areas, reducing risk to people by providing rapid fire knockdown and reduces risk of machine loss. Automatic activation is a standard feature and the rapid cooling effect reduces the risk of re-ignition.

# EASE OF MAINTENANCE AND SERVICEABILITY

Toro™ TH545i truck is designed for ground level daily maintenance. When getting to the top of the equipment is required, the access system provides a steady grip, including 3-point contact high contrast handles and anti-slip steps. Standard features improving safety of maintenance include lockable main switch, articulation lock, box support and wheel chocks, among others. Sandvik Intelligent Control System monitors the equipment health and provides early warnings.



## **AUTOMATIC CENTRAL LUBRICATION**

The standard Automatic Central Lubrication System optimizes grease consumption and extends the life of the bushes and bearing. Activated by Sandvik Intelligent Control System when the 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.

## **SAFER MAINTENANCE ACCESS**

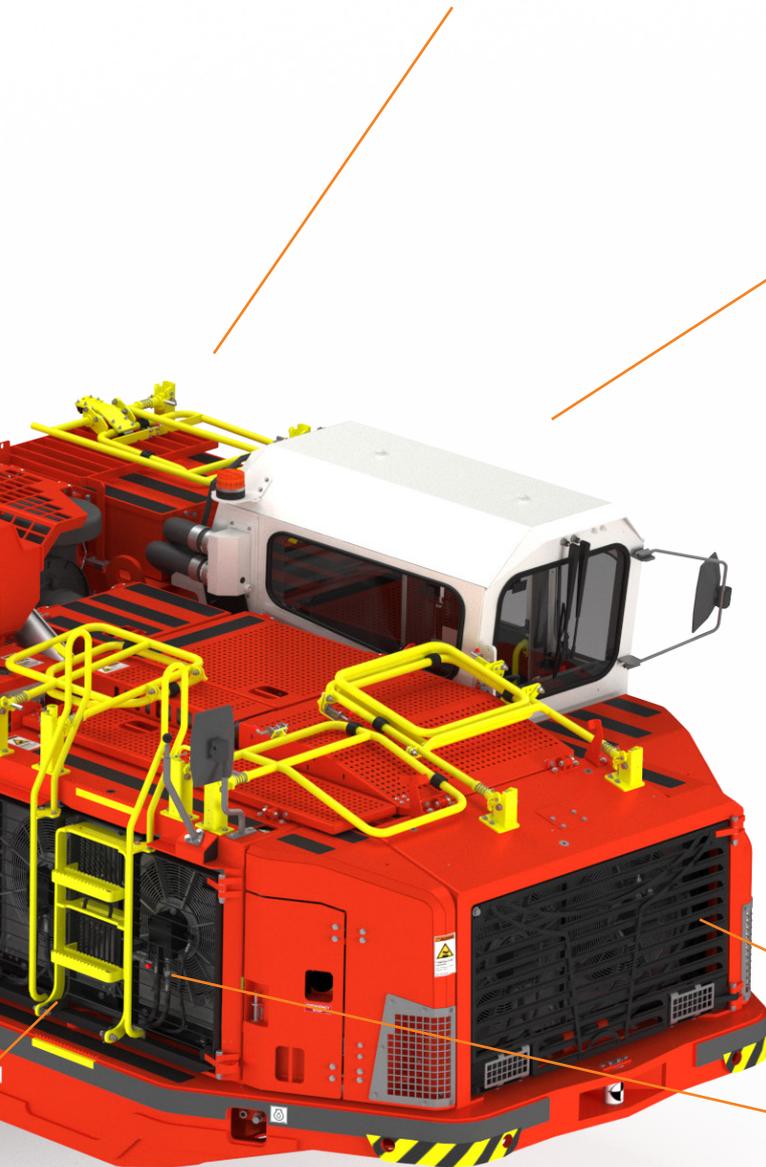
When access to the top of the equipment is needed, a new access system includes 3-point contact high contrast handles and anti-slip steps. Top covers are perforated to reduce risks for slipping, and where perforation is not practical, anti-slip tapes are fitted. Standard features improving safety of maintenance work include lockable main switch, articulation lock, box support and wheel chocks, among others.

### SAFETY ON TOP

Toro™ TH545i truck can be equipped with safety 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.

### SMART MAINTENANCE

To minimize the need to move around the machine or use special tools, the 5.7" touch screen color display in the operator's compartment provides service information, easy system diagnostics and alarm log files. An automatic brake test with diagnostics and logging can also be performed from the display. While the Sandvik Intelligent Control System monitors air, hydraulic and transmission filters.



### EFFICIENT AND EASY TO CLEAN COOLERS

Toro™ TH545i truck has an easy to clean engine cooler with swing out fans to allow effective cleaning from both sides of the radiator core. It features separate coolers for the hydraulic and brake oil, radiator and transmission. The lower oil temperatures reduce stress on the system, therefore extending component lifetimes and minimizing oil leaks.

### GROUND LEVEL SERVICE

Toro™ TH545i truck is designed for ground level daily service with smarter placement of key service areas and safer maintenance access. An efficient engine filter is housed well within the frame for impact protection and 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.

# LOW COST PER TONNE HAULED

## **ROBUST AND RELIABLE POWERTRAIN**

The engine and drivetrain components are based on the proven TH540 truck. This includes a transmission with automatic gear shifting and torque converter lock up ensuring fast ramp speeds.

## **SUPERIOR BRAKING POWER**

The standard engine brake provides superior braking power downhill for safer tramming, shorter cycle times and reduced brake wear as well as improved reliability through the elimination of a retarder. Durable axles use limited slip differentials to maintain traction and spring applied hydraulic release brakes for safer braking. Top speeds can be reduced by optional gear limiting to improve safety in narrow tunnels and rough roads.

## **LOW EMISSION STAGE V ENGINE OPTION**

The 405kW Stage V engine, available as an option, offers the best-in-class MSHA and CANMET ventilation rates with Ultra Low Sulphur Diesel fuel. This engine's exhaust after treatment system consists of a selective catalytic reduction system (SCR) using diesel exhaust fluid to reduce emissions of nitrogen oxides. The SCR delivers compliance with Stage V emissions regulations across European Union and other countries, without sacrificing performance and fuel efficiency.

## **FEA OPTIMIZED FRAMES**

Toro™ TH545i truck has 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 frame is computer designed, using Finite Element Analysis (FEA) and made from high strength structural steel for superior strength to weight ratio.

## **PROVEN LOAD SENSE HYDRAULICS**

A proven Load Sense Hydraulic system with variable displacement piston pumps provides on demand pressure and flow for greater efficiency, enabling increased tractive effort and reduced fuel consumption.

## **EFFICIENT COOLING FOR INCREASED PERFORMANCE**

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

## **LOGLIFE STEEL PIPING**

Extensive use of hydraulic steel piping throughout the Toro™ TH545i truck delivers longer lifetime and easier maintenance access than hydraulic hoses.



# SANDVIK 365 PARTS & SERVICES

## LIFETIME SUPPORT

Having great equipment is only part of the story. What makes working with Sandvik an unbeatable experience is the blend of lifetime support we can provide through our broad offering of genuine parts & components, services and digital innovations.

At the heart of this package lies a combination of skilled people, integrated processes & systems and a global footprint.

## QUALITY SERVICE TAILORED TO YOUR NEEDS

We offer different type of service agreements and advisory services that can be adapted to suit the support you require – helping you to maintain your fleet in the optimal way.

It's our job to keep your equipment in full health and to make sure that major components of your loader are being replaced or repaired at optimum intervals. With our solutions, you can expect superior reliability and longer life than with non-OEM alternatives.

## DIGITAL SERVICES FROM THE EXPERTS

As a long established and trusted OEM we understand the challenges our customers face in their mines with our equipment. In addition to that, we have the highest number of connected mining equipment.

Our learnings over this time have helped us to understand not only capturing the data but analyzing it to provide insights which deliver tangible value to our customers. Remote Monitoring Service is one example - the service leverages state of the art cloud technologies and AI to convert machine data into actionable information, hence enabling the prevention and prediction of breakdowns before they happen.



# TECHNICAL SPECIFICATION

## TORO™ TH545i

Toro™ TH545i is a high performance 45 tonne articulated underground dump truck for use in 4.5 x 4.5 meter haulage ways. The truck's performance is based on proven design, high engine power and high payload related to own weight.

This robust and intelligent truck delivers benefits in safety, productivity and profitability. Safety, health and comfort are enhanced with enclosed and vibration isolated cabin. Optional EU Stage V engine will further help reducing the fuel consumption and emissions without sacrificing the high productivity.

Toro™ TH545i truck features a wide range of intelligence integrated technology, such as Sandvik Intelligent Control system, My Sandvik Digital Services and Automation compatibility as standard, supplemented with Onboard Weighing System option for tracking the payload. With the latest addition of the AutoMine® Trucking Onboard option, Toro™ TH545i enables autonomous haulage for both transfer level and decline ramp application.

### CAPACITIES

Maximum payload capacity (SAE heaped 2:1)	45 000 kg
Standard dump box	22.0 m <sup>3</sup>
Dump box range	18 - 26 m <sup>3</sup>

### SPEEDS (LEVEL/LOADED) WITH ENGINE VOLVO TAD1641VE-B

1st gear	5.4 km/h
2nd gear	7.2 km/h
3rd gear	9.8 km/h
4th gear	12.9 km/h
5th gear	17.1 km/h
6th gear	22.6 km/h
7th gear	30.7 km/h

### DUMP BOX MOTION TIMES & MOVEMENTS

Discharging time	14 sec
Dumping angle	62 °

### OPERATING WEIGHTS \*

Total operating weight	36 000 kg
Front axle	26 500 kg
Rear axle	9 500 kg

### LOADED WEIGHTS \*

Total loaded weight	81 000 kg
Front axle	37 900 kg
Rear axle	43 100 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 TAD1641VE - B from -1500 m to +1000 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 ISO 19296:2018 Mining - Mobile machines working underground - Machine safety

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

Refrigerant R134a under pressure max 38 bar/550 PSI:

Filled weight: 2,0 kg

CO<sub>2</sub>e: 2,860 tons

GWP: 1430

Information based on the F Gas Regulation (EU) No 517/2016"

## POWER TRAIN

### ENGINE

Diesel engine	Volvo TAD1641VE (Tier 2 )
Engine brake	Yes
Output	450 kw (603 hp) @ 1800 rpm
Torque	2913 Nm @ 1200 rpm
Number of cylinders	In-line 6
Displacement	16.1 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)	CANMET 34,800 CFM MSHA 30,000 CFM
Particulate index (Ultra low sulphur diesel)	MSHA Particulate Ventilation Index 5,000 CFM
Exhaust system	Catalytic purifier with muffler
Average fuel consumption at 50% load	58 l/h
Fuel tank refill capacity	620 l
Compatible with paraffinic diesel fuel (EN 15940)	Yes

### TRANSMISSION

Fully automatic transmission with electric shifting system.

Seven gears forward and two reverse.

Dana 8000 Series

## CONVERTER

Dana C9000 Series with Lock up

## AXLES

Front axle	Kessler D106 series, spring applied hydraulic operated brakes, equipped with standard differential, oscillation
Rear axle	Kessler D106 series, spring applied hydraulic operated brakes, equipped with standard differential

## TIRES

Tire size (Tires are application  
approved. Brand and type  
subject to availability.) 29.5 R 25 E4 \*\*

## HYDRAULICS

### MAIN COMPONENTS

Filling pump for hydraulic oil

Filtration

Door interlock for brake hydraulics

Oil cooler for hydraulic and transmission oil capability up to 55°C  
ambient temperature

Fittings ORFS

Hydraulic oil tank capacity 225 l

Sight glass for oil level 2 pcs

### STEERING HYDRAULICS

Fully hydraulic, center articulad, power steering with two double  
acting cylinders.

Steering main valve Pilot operated

Steering hydraulic cylinders 125 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.

Hydraulic pump Variable displacement piston pump

Control valve Solenoid operated

Main valve Solenoid operated

Cylinders 160 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 3sec in neutral gear

Automatic brake activation system, ABA

Electrically driven emergency brake release pump

Foot operated brake pedal valve, fully modulated

Brake oil tank capacity 95 l

## OPERATOR'S COMPARTMENT

Toro™ TH545i 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

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
Safety 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
Adjustable steering wheel
No high pressure hoses in the operator's compartment
Inclinometers to indicate operating angle
Dump box alarm buzzer in the cabin
Emergency exit
Floor washable with water to reduce dust
Three-point contact access system with replaceable and colour coded handles and steps
12 V output
Remote circuit breaker switch

### OPERATOR'S SEAT

Low frequency suspension
Height adjustment
Adjustment according to the operator's weight
Fore-aft isolation
Padded and adjustable arm rests
Adjustable lumbar support
Selectable damping
Four-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	0.83
$VDV_w$ over 15 min period [ $m/s^{1.75}$ ], driving with load	14.43

### 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 TAD1641VE-B Tier 2.

Sound pressure level $L_{pA}$ [dB re 20 $\mu Pa$ ]	80 dB
Sound power level $L_{WA}$ [dB ew 1 p W]	119 dB

## CONTROL SYSTEM, DASHBOARD AND DISPLAYS

Sandvik Intelligent Control system
Critical warnings and alarms displayed as text and with light, warning and alarm recorded to the control system log
5.7" Display with adjustable contrast and brightness
Instrument panel with illuminated switches
My Sandvik Digital Services Knowledge Box™ on-board hardware
AutoMine® Trucking compatibility
Supports 3G, 4G, LTE and WLAN data transfer

## FRAME

### 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.
Central hinge with adjustable lower bearing
Tanks are part of the frame structure
Automatic central lubrication

## ELECTRICAL EQUIPMENT

### MAIN COMPONENTS

Alternator	28 V, 150 A
Batteries	2 X 12 V, 160 Ah
Starter	24 V, 7 kW
Driving lights	LED lights: 4 pcs in front 2 pcs in rear
Working lights	LED lights: 2 pcs in rear of cabin 2 pcs 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, inbuilt system diagnostics
Reverse alarm (CE)	
Reverse camera	
Flashing beacon	

### ILLUMINATION

Illuminance $E_{av}$ with 2 pieces of 50 W led lights at a distance of 20 m in front of the truck:	
Head lights, low beam $E_{av}$	42 lx
Illuminance $E_{av}$ with 2 pieces of 50 W led lights at a distance of 20 m behind the truck:	
Reversing lights, low beam $E_{av}$	41 lx

Toro™ TH545i is compliant with the South African Mine health and safety act 29 of 1996, as the average light intensity in the direction of travel is more than 10 lux at a distance of 20 m.

## INCLUDED SAFETY FEATURES

### FIRE SAFETY

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

### ENERGY ISOLATION

Lockable main switch, ground level access	
Emergency stop push buttons	1 pc in cabin
according to EN ISO 13850	1 pc in front frame
	2 pcs in rear frame
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	
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

### OPTIONAL ENGINE

Diesel engine	Volvo TAD1385VE
Engine brake	Yes
Requirements	Ultra low sulphure fuel and AdBlue
Output	405 kw (543 hp) @ 1710 rpm
Torque	2650 Nm @ 1200 rpm
Emissions	Euro Stage V
Ventilation rate	CANMET 20,000 CFM
(Ultra low sulphur diesel)	MSHA 17,500 CFM
Particulate index	MSHA Particulate Ventilation Index
(Ultra low sulphur diesel)	1,000 CFM
Average fuel consumption at 50% load	51 l/h
Compatible with paraffinic diesel fuel (EN 15940)	Yes

## AVAILABLE BOXES

With 90% fill factor

Box capacity (m <sup>3</sup> )	18 m <sup>3</sup>	20 m <sup>3</sup>	22 m <sup>3</sup>	24 m <sup>3</sup>	26 m <sup>3</sup>	20 m <sup>3</sup> ejector box	28 m <sup>3</sup>	32 m <sup>3</sup>
Material broken density (kg/m <sup>3</sup> )	2800 kg/m <sup>3</sup>	2500 kg/m <sup>3</sup>	2300 kg/m <sup>3</sup>	2000 kg/m <sup>3</sup>	1900 kg/m <sup>3</sup>	2000 kg/m <sup>3</sup>	1700 kg/m <sup>3</sup>	1600 kg/m <sup>3</sup>
Total height (mm)	2560	2742	2900	2950	3100	2982	3260	3300

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

## OPTIONS

ANSUL Twin fire suppression system (CE)
Arctic package 120 V (preheater for hydr. oil tank, transmission and engine block)
Arctic package 240 V (preheater for hydr. oil tank, transmission and engine block)
AutoMine® Trucking: Onboard Package
CE declaration of conformity
Cold climate package (incl. cabin heater, cabin window defroster and side mirrors with defrost system)
Control System Toolkit
Cover grills for lamps
CRN pressure accumulators
Direct feed for beacon
Driving direction lights (red / green)
DPF exhaust system, HJS (not available with Stage V)
Emergency steering (CE)
Fire suppression system Eclipse™ with auto shutdown (CE)
Flashing beacon clear/blue
Gear limit
Harsh conditions package (stainless steel pipes and fittings, sealed alternator)
Integrated weighing system IWS
Jump start interface
Lower cabin height, 2716 mm
Proximity Detection System (PDS) Interface
Safety rails
Seat, Actimo XXL with high backrest+headrest, adjustable armrests, wide seat cushion
Seat, comfort, mid backrest with two-point seat belt
Spare rim 25.00-25/3.5 (for tyres 29.5R25)
Starter isolator
Towing hitch
Tyre pressure monitoring system
Wiggins fuel fill system
Wiggins quick filling set for fuel and oils

**GRADE PERFORMANCE**

Volvo TAD1641VE - B (Tier 2)

3% rolling resistance, with lock-up

**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)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.3
2nd gear (km/h)	7.2	7.2	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.0
3rd gear (km/h)	9.8	9.7	9.7	9.7	9.6	9.6	9.5	9.5	9.5	9.4
4th gear (km/h)	12.9	12.8	12.8	12.7	12.6	12.6	12.5	12.4	12.4	12.3
5th gear (km/h)	17.1	16.9	16.8	16.7	16.6	16.5	16.3	16.2	15.7	14.6
6th gear (km/h)	22.6	22.4	22.2	22.0	21.8	21.6	20.6	19.3	17.1	
7th gear (km/h)	30.7	30.3	30.0	29.6	28.5	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
Ratio					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.2	5.2	5.2
2nd gear (km/h)	7.1	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.7	6.4
3rd gear (km/h)	9.7	9.6	9.5	9.5	9.4	9.3	9.0	8.5	7.6	
4th gear (km/h)	12.8	12.6	12.5	12.3	12.1	11.2	9.7			
5th gear (km/h)	16.8	16.6	16.3	15.6	13.6					
6th gear (km/h)	22.2	21.8	20.4							
7th gear (km/h)	30.0	28.2								

**GRADE PERFORMANCE**

Volvo TAD1385VE (Stage V)

3% rolling resistance, with lock-up

**EMPTY**

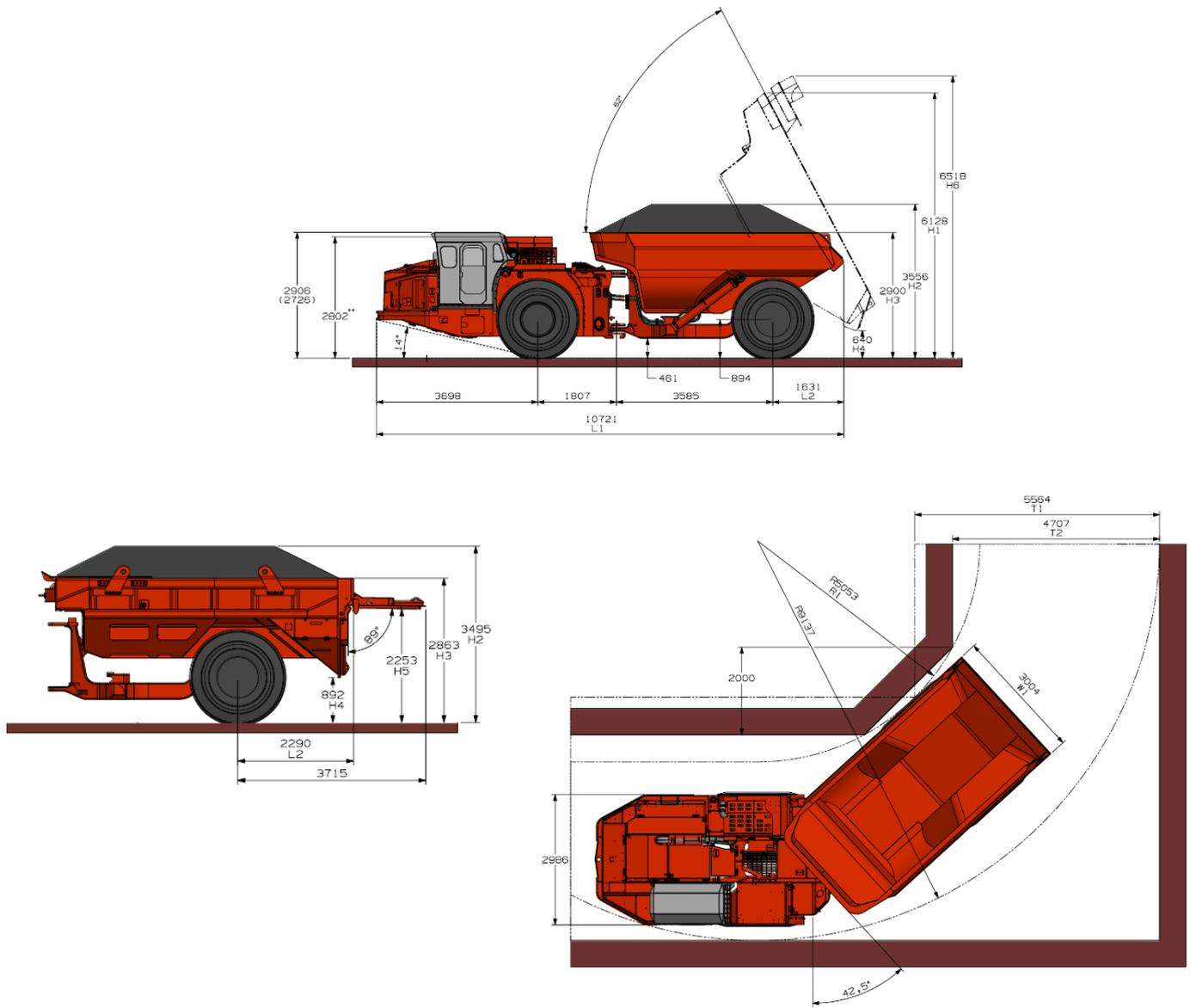
Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.5	14.3	17.0	20.0
Ratio					1:12	1:10	1:8	1:7	1:6	1:5
1st gear (km/h)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.3
2nd gear (km/h)	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.0
3rd gear (km/h)	9.8	9.7	9.7	9.7	9.6	9.6	9.5	9.5	9.4	9.4
4th gear (km/h)	12.9	12.8	12.8	12.7	12.6	12.5	12.4	12.4	12.3	12.1
5th gear (km/h)	17.0	16.9	16.8	16.7	16.5	16.4	16.3	15.9	14.6	13.0
6th gear (km/h)	22.7	22.4	22.1	21.9	21.7	21.1	18.8	17.1		
7th gear (km/h)	30.7	30.3	29.8	29.4	26.3	21.5				

**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)	5.4	5.4	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.1
2nd gear (km/h)	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.8	6.4	5.7
3rd gear (km/h)	9.6	9.6	9.5	9.4	9.3	9.2	8.3	7.6		
4th gear (km/h)	12.6	12.6	12.4	12.3	11.5	10.1				
5th gear (km/h)	16.7	16.5	16.2	14.3						
6th gear (km/h)	22.2	21.7	18.5							
7th gear (km/h)	29.9	25.8								

## DIMENSIONS WITH 22 M³ BOX (STANDARD)

The dimensions are indicative only. Refer to the table below for accurate measurements of Toro™ TH545i.



### DIMENSIONS

Dump Boxes		18	20	22	24	26	28	32	EJECTOR
Volume SAE heaped 2:1*	(m³)	18	20	22	24	26	28	32	20
Maximum material density with fill factor of 90%	(t/m³)	2.8	2.5	2.3	2.0	1.9	1.7	1.6	2.0
Overall Machine Length	L1 (mm)	10702	10723	10721	10711	10702	10893	11056	11423
Rear Axle to Rear of Machine	L2 (mm)	1612	1633	1631	1612	1612	1803	1966	2290
Dump Position Height Max	H1 (mm)	5977	6061	6128	6146	6251	6327		
SAE Heap Height	H2 (mm)	3296	3406	3556	3694	3793	3953	4076	3495
Dumpbox Spillguard	H3 (mm)	2560	2742	2900	2950	3103	3262	3300	2863
Discharge Height	H4 (mm)	655	640	640	640	660	609	511	892
Ejector bucket tailgate height	H5 (mm)								2253
Dump box Cover Height	H6 (mm)							6518	
Dumpbox width	W1 (mm)	3004	3004	3004	3154	3154	3154	3480	3003
Dumpbox turn radius	R1 (mm)	5053	5053	5053	5012	5012	5012	4847	5053
Minimum tunnel width	T1 (mm)	5564	5564	5564	5593	5593	5593	5705	5564
Tunnel width	T2 (mm)	4707	4707	4707	4737	4737	4737	4848	4707

\* According to SAE 1363/ISO 6483

