



SANDVIK TH545i SAFER. STRONGER. SMARTER.



INCREASED PRODUCTIVITY

Higher payload capacity and ramp speeds

Equipment low own weight, 45 tonne payload capacity and high ramp speeds enable increased productivity; the TH545i provides a 12.5% increase in payload capacity compared with its predecessor, the 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 allow less downshifting and better acceleration. Peak torque is delivered at low engine rpm for better fuel economy and reduced noise. Low machine own weight and higher power enable high tramming speed up a decline, shortening cycle times.

Achieve full capacity with a wide range of box options

Sandvik dump boxes are already 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, and the reinforced steel structure uses wear resistant steel for extended box lifetime. Optional ejector box is available for backfilling and unloading in areas of restricted dump height.

Production monitoring

To ensure maximum utilization of the rated payload on every trip, the TH545i 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 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

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 the TH545i for retrofitting later in the truck's lifetime. All sensors have increased protection from rock fall. With AutoMine®, a truck fleet 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 the TH545i 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 TH545i 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 the 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 modern cabin of the TH545i offers premium operator ergonomics. Low noise levels in the cabin, 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 air conditioning system supplying fresh air; all help to reduce operator fatigue.

FOR OPERATOR SAFETY

The cabin uses dust and noise 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 5.7" 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 a reversing camera as standard. For cold conditions, an optionally available arctic package helps to keep windows and mirrors free of ice and mist.

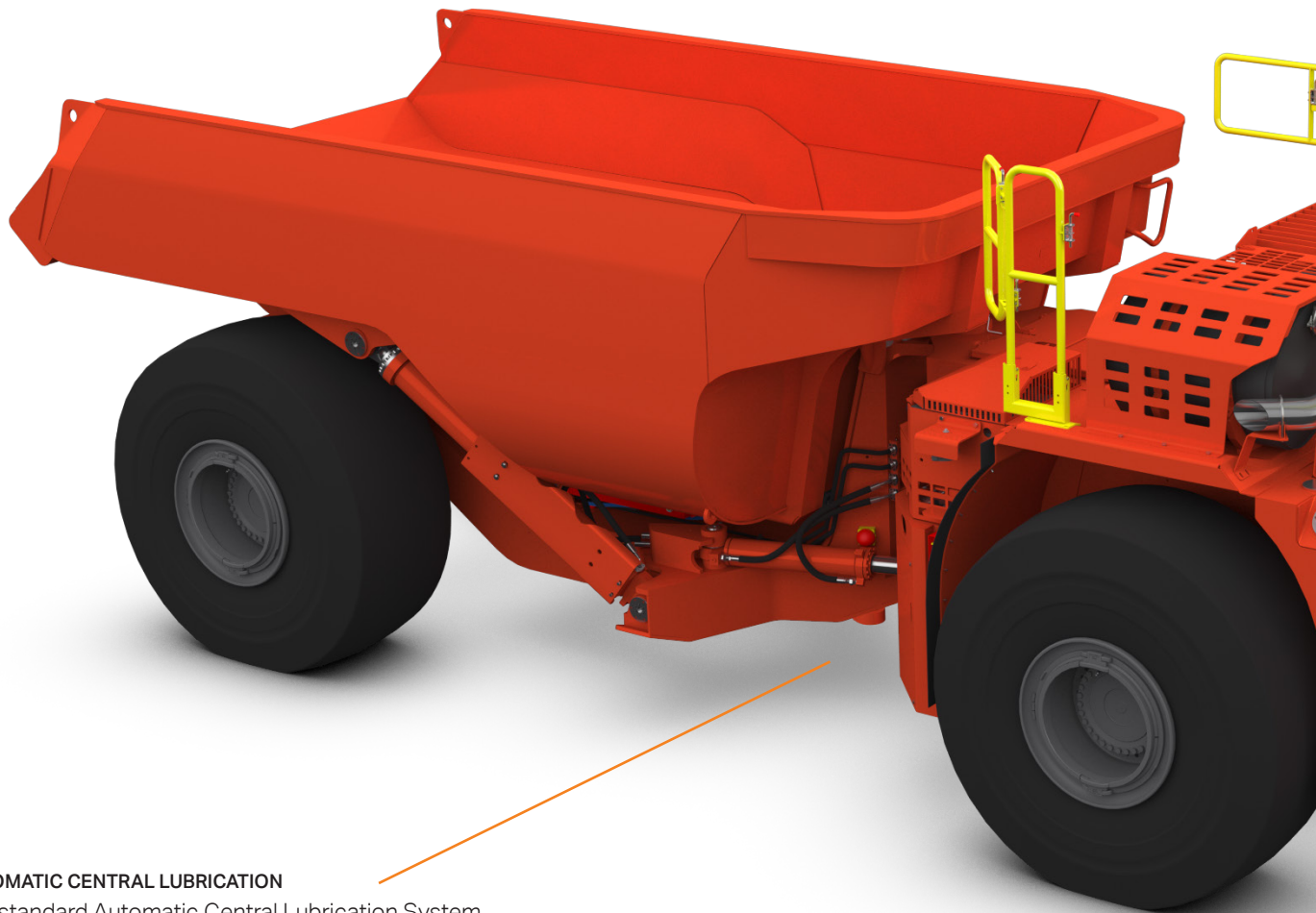
FIRE SAFETY

Significant efforts have been made to achieve top-level fire safety in the truck, including for example isolation of combustibles and ignition sources, heat insulation on 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 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.

EASE OF MAINTENANCE AND SERVICEABILITY

The TH545i 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 bearings. Activated by Sandvik intelligent control system when park brake is released, hard to reach areas are well lubricated and service time 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, the 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.

SAFETY ON TOP

The 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

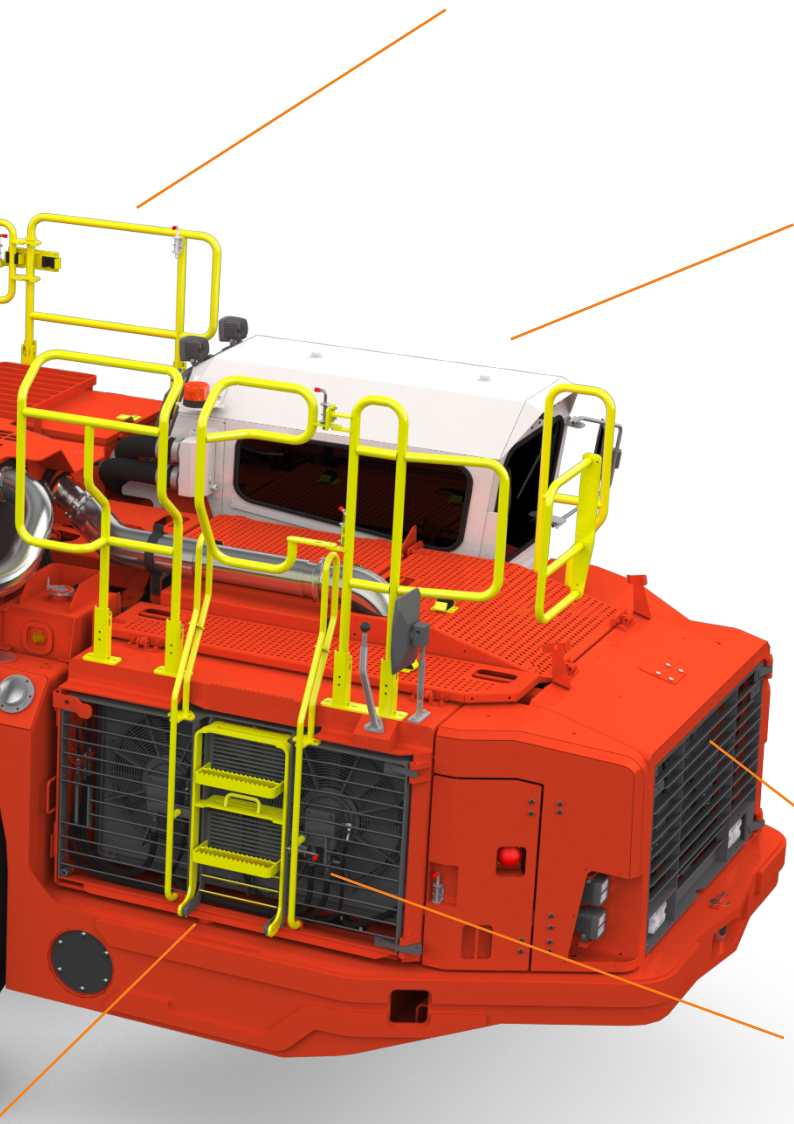
To minimize the need to move around the machine or use special tools, the 5.7" touch screen color display of the Sandvik Intelligent Control System provides service information, easy system diagnostics and alarm log files. An automatic brake test with diagnostics and logging can also be performed from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

EASY TO CLEAN COOLERS

The truck has a unique easy to clean engine cooler with swing out fans to allow effective cleaning from both sides of the radiator core. Designed for high ambient temperatures, the V-tube radiator features replaceable copper tubes for fast and easy repair. Corrosion resistant Brass tubes are included in the optional aggressive water package.

GROUND LEVEL SERVICE

The TH545i is designed for ground level daily service with smart 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 EMISSIONS WITH TIER 4 FINAL ENGINE

The standard 450kW Tier 2 engine with catalytic purifier and muffler delivers long engine lifetime. The 405kW Tier 4f engine, available as an option, offers 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 Tier 4f emissions regulations, without sacrificing performance and fuel efficiency.

FEA OPTIMIZED FRAMES

The TH545i welded steel box structures used in the frame provide strong resistance to shock loads and are optimized to reduce stresses and extend frame lifetime. 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. 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 TH545i delivers longer lifetime and easier maintenance access than hydraulic hoses.



SANDVIK 365 PARTS & SERVICES

PROUDLY KEEPING YOU ON TRACK!

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

SANDVIK TH545i

The 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 IV / Tier 4f low emission engine will further help reducing the fuel consumption and emissions without sacrificing the high productivity.

The 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, the 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 ³
Dump box range	18 - 26 m ³

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

1st gear	5.4 km/h
2nd gear	7.2 km/h
3rd gear	9.7 km/h
4th gear	12.8 km/h
5th gear	16.9 km/h
6th gear	22.3 km/h
7th gear	30.1 km/h

DUMP BOX MOTION TIMES & MOVEMENTS

Discharging time	14 sec
Dumping angle	62 °

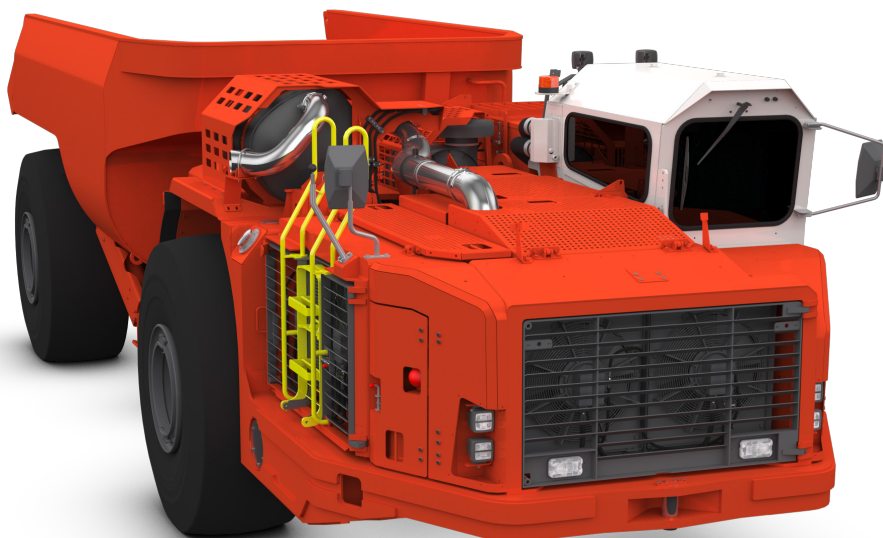
OPERATING WEIGHTS *

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 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 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 TAD1641VE - B (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 converter with muffler
Average fuel consumption at 50% load	49 l/h
Fuel tank refill capacity	620 l

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 **
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HYDRAULICS

MAIN COMPONENTS

Filling pump for hydraulic oil	
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
Automatic brake activation system, ABA
Electrically driven emergency brake release pump
Foot operated brake pedal valve, fully modulated
Brake oil tank capacity 100l

OPERATOR'S COMPARTMENT

The 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 μPa]	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

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, 5 modules, 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

The 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

OPTIONS

ANSUL Twin fire suppression system (CE)

Arctic package 120 V (preheater for hydr. oil tank, transmission and engine block)

Arctic package 230 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

Driving direction lights (red / green)

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

Spare rim 25.00-25/3.5 (for tyres 29.5R25)

Tyre pressure monitoring system

Wiggins fuel fill system

Wiggins quick filling set for fuel and oils

OPTIONAL ENGINE

Diesel engine	Volvo TAD1670VE
Engine brake	Yes
Requirements	Ultra low sulphure fuel and AdBlue
Output	405 kw (543 hp) @ 1900 rpm
Torque	2750 Nm @ 1000 rpm
Emissions	Tier 4f / Euro Stage IV
Ventilation rate	CANMET 16,900 CFM
(Ultra low sulphur diesel)	MSHA 16,000 CFM
Particulate index	MSHA Particulate Ventilation Index
(Ultra low sulphur diesel)	2,000 CFM
Average fuel consumption	39 - 49 l/h
at 40% - 50% load	

AVAILABLE BOXES

With 90% fill factor

Box capacity (m ³)	18 m ³	20 m ³	22 m ³	24 m ³	26 m ³	20 m ³ ejector box
Material broken density (kg/m ³)	2800 kg/m ³	2500 kg/m ³	2300 kg/m ³	2000 kg/m ³	1900 kg/m ³	2000 kg/m ³
Total height (mm)	2586	2731	2886	2946	3096	2982

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)	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3
2nd gear (km/h)	7.2	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.0
3rd gear (km/h)	9.8	9.8	9.7	9.7	9.7	9.6	9.6	9.5	9.5	9.4
4th gear (km/h)	12.9	12.9	12.8	12.7	12.7	12.7	12.5	12.5	12.4	12.3
5th gear (km/h)	17.1	17.0	16.9	16.8	16.6	16.5	16.4	16.3	15.9	14.8
6th gear (km/h)	22.7	22.5	22.3	22.1	21.9	21.6	20.9	19.5	17.3	
7th gear (km/h)	30.8	30.5	30.1	29.7	28.8	26.0				

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	5.4	5.3	5.3	5.3	5.3	5.2	5.2
2nd gear (km/h)	7.2	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.8	6.5
3rd gear (km/h)	9.7	9.7	9.6	9.5	9.4	9.3	9.1	8.6	7.7	
4th gear (km/h)	12.8	12.7	12.5	12.4	12.2	11.4	9.9			
5th gear (km/h)	16.9	16.6	16.4	15.8	13.7					
6th gear (km/h)	22.3	21.8	20.7	15.4						
7th gear (km/h)	30.1	28.5								

GRADE PERFORMANCE

Volvo TAD1670VE (Tier 4f / Stage IV)

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)	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3
2nd gear (km/h)	7.2	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.0
3rd gear (km/h)	9.8	9.8	9.7	9.7	9.7	9.6	9.6	9.5	9.5	9.4
4th gear (km/h)	12.9	12.9	12.8	12.7	12.7	12.6	12.5	12.5	12.4	12.3
5th gear (km/h)	17.1	17.0	16.9	16.8	16.7	16.5	16.4	16.3	15.0	13.5
6th gear (km/h)	22.7	22.5	22.3	22.1	21.9	21.7	19.5	17.8		
7th gear (km/h)	30.8	30.5	30.1	29.7	27.1					

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	5.4	5.3	5.3	5.3	5.3	5.2	5.2
2nd gear (km/h)	7.2	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.6	5.9
3rd gear (km/h)	9.7	9.7	9.6	9.5	9.4	9.3	8.6	7.9	6.3	
4th gear (km/h)	12.8	12.7	12.5	12.4	11.9	10.4				
5th gear (km/h)	16.9	16.6	16.4	14.8	12.4					
6th gear (km/h)	22.3	21.8	19.1							
7th gear (km/h)	30.1	26.6								

DIMENSIONS WITH 22 M³ BOX (STANDARD)

The dimensions are indicative only

