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. Sandvik TH545i provides 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 allows 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 enables 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, Sandvik 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

AUTO-MINE®
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 Sandvik TH545i for retrofitting later in the truck’s lifetime. All sensors have increased protection from rock fall. With AutoMine®, a fleet of Sandvik TH545i is converted into a high performing autonomous production system, providing significant safety and productivity improvements for mine operations.

OPTIMINE®
Take optimization further with OptiMine®, the powerful suite of digital tools for real time visualization, analysis, and optimization of mining production and processes. OptiMine® integrates all relevant data into one source, delivering both real-time and predictive insights to improve operations. OptiMine® is open, OEM independent and scalable, providing the flexibility to add on and incorporate other equipment, systems, and networks.

KNOWLEDGE BOX™
The Knowledge Box™ onboard Sandvik 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 Sandvik 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 Sandvik TH545i 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 Sandvik 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 3-layer 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 reversing and right-hand side cameras 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 Sandvik TH545i. These include 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

Sandvik 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.

Standard features improving safety of maintenance work include lockable main switch, articulation lock, box support and wheel chocks, among others.
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.

GROUND LEVEL SERVICE
Sandvik TH545i is designed for ground level daily service with smart placement of key service areas and safer maintenance access. An efficient Power Core 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.

SAFETY ON TOP
Sandvik TH545i 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.

EASY TO CLEAN COOLERS
Sandvik TH545i 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.
LOW COST PER TONNE HAULED

ROBUST AND RELIABLE POWERTRAIN
The engine and drivetrain components are based on the proven Sandvik 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 trumming, 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
Sandvik TH545i welded steel box structures used in the frame and boom 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.

LONGLIFE STEEL PIPING
Extensive use of hydraulic steel piping throughout Sandvik 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 TH545i 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.

Sandvik TH545i
Sandvik 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.

Sandvik 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, Sandvik TH545i enables autonomous haulage for both transfer level and decline ramp application.

### CAPACITIES
- Payload capacity: 45 000 kg
- (SAE heaped 2:1)
- Standard dump box: 22.0 m³
- Dump box range: 18 - 26 m³

### SPEEDS (LEVEL/LOADED)
- 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
CONVERTER
Dana C9000 Series with Lock up

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 CANMET 34,800 CFM
(Ultra low sulphur diesel) MSHA 30,000 CFM
Particulate index MSHA Particulate Ventilation Index
(Ultra low sulphur diesel) 5,000 CFM
Exhaust system Catalytic converter with muffler
Average fuel consumption 47 - 59 l/h
at 40-50% load
Fuel tank refill capacity 620 l

POWER TRAIN

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 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 GREEN-HOUSE GASES
Refrigerant R134a under pressure max 38 bar/550 PSI:
Filled weight: 2,000 kg
CO2e: 2,860 tons
GWP: 1430
Information based on the F Gas Regulation (EU) No 517/2016”

TRANSMISSION
Fully automatic transmission with electric shifting system.
Seven gears forward and two reverse
Dana 8000 Series

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
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
Dana 8000 Series
OPERATOR’S COMPARTMENT

Sandvik 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
- Cabinet mounted on rubber mounts 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 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.

<table>
<thead>
<tr>
<th>RpA</th>
<th>LWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 dB</td>
<td>119 dB</td>
</tr>
</tbody>
</table>

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 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   |                |
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, 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

COLD CLIMATE PACKAGE (INCL. CABIN HEATER, CABIN WINDOW DEFROSTER AND SIDE MIRRORS WITH DEFROST SYSTEM)

ARCTIC PACKAGE 230 V (PREHEATER FOR HYDR. OIL TANK, TRANSMISSION AND ENGINE BLOCK)

ARCTIC PACKAGE 120 V (PREHEATER FOR HYDR. OIL TANK, TRANSMISSION AND ENGINE BLOCK)

HARSH CONDITIONS PACKAGE (STAINLESS STEEL PIPES AND FITTINGS, SEALED ALTERNATOR)
- Seat, Actimo XXL with high backrest + headrest, adjustable armrests, wide seat cushion
- Lower cabin height, 2716 mm
- Proximity Detection System (PDS) Interface
- Control system tool kit
- Driving direction lights (red / green)
- Fire suppression system ANSUL, 2 tanks, 8 nozzles (CE), including auto shutdown (not for automation)
- Fire suppression system ANSUL, 2 tanks, 8 nozzles (CE), CHECKFIRE, including auto shutdown
- Fire suppression system Eclipse™ TM with auto shutdown; Sustain or Extreme agent delivered separately
- Safety rails
- Emergency steering (CE)
- AutoMine® Trucking: Onboard Package
- Cover grills for lamps
- Gear limit
- Spare rim 25.00-25/3.5 (for tyres 29.5R25)
- Tyre pressure monitoring system
- CRN pressure accumulators
- Flashing beacon (clear or blue)
- Wiggins quick filling set for fuel and oils (hydraulic, engine and transmission)
- Wiggins fuel fill system
- Integrated weighing system IWS
- Customer specific disassembly and slinging down drawings / instructions
- Jump start interface
- CE Declaration of conformity (CE)

OPTIONAL ENGINE

- Diesel engine: Volvo TAD1670VE
- Engine brake: Yes
- Requirements: Ultra low sulphur 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 at 40% - 50% load: 39 - 49 l/h
AVAILABLE BOXES

With 90% fill factor

<table>
<thead>
<tr>
<th>Box capacity (m³)</th>
<th>18 m³</th>
<th>20 m³</th>
<th>22 m³</th>
<th>24 m³</th>
<th>26 m³</th>
<th>20 m³ ejector box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material broken density (kg/m³)</td>
<td>2800 kg/m³</td>
<td>2500 kg/m³</td>
<td>2300 kg/m³</td>
<td>2000 kg/m³</td>
<td>1800 kg/m³</td>
<td>2200 kg/m³</td>
</tr>
</tbody>
</table>

GRADE PERFORMANCE

**Volvo TAD1641VE - B (Tier 2)**

3% rolling resistance, with lock-up

### EMPTY

<table>
<thead>
<tr>
<th>Percent grade</th>
<th>0.0</th>
<th>2.0</th>
<th>4.0</th>
<th>6.0</th>
<th>8.0</th>
<th>10.0</th>
<th>12.5</th>
<th>14.3</th>
<th>17.0</th>
<th>20.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>1:12</td>
<td>1:10</td>
<td>1:8</td>
<td>1:7</td>
<td>1:6</td>
<td>1:5</td>
<td>1:4</td>
<td>1:3</td>
<td>1:2</td>
<td>1:1</td>
</tr>
<tr>
<td>1st gear (km/h)</td>
<td>5.5</td>
<td>5.5</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2nd gear (km/h)</td>
<td>7.2</td>
<td>7.2</td>
<td>7.2</td>
<td>7.2</td>
<td>7.1</td>
<td>7.1</td>
<td>7.1</td>
<td>7.1</td>
<td>7.1</td>
<td>7.0</td>
</tr>
<tr>
<td>3rd gear (km/h)</td>
<td>9.8</td>
<td>9.8</td>
<td>9.7</td>
<td>9.7</td>
<td>9.6</td>
<td>9.6</td>
<td>9.5</td>
<td>9.5</td>
<td>9.4</td>
<td>9.4</td>
</tr>
<tr>
<td>4th gear (km/h)</td>
<td>12.9</td>
<td>12.9</td>
<td>12.8</td>
<td>12.7</td>
<td>12.7</td>
<td>12.7</td>
<td>12.7</td>
<td>12.6</td>
<td>12.5</td>
<td>12.4</td>
</tr>
<tr>
<td>5th gear (km/h)</td>
<td>17.1</td>
<td>17.0</td>
<td>16.9</td>
<td>16.8</td>
<td>16.6</td>
<td>16.5</td>
<td>16.4</td>
<td>16.3</td>
<td>15.9</td>
<td>14.8</td>
</tr>
<tr>
<td>6th gear (km/h)</td>
<td>22.7</td>
<td>22.5</td>
<td>22.3</td>
<td>22.1</td>
<td>21.9</td>
<td>21.6</td>
<td>20.9</td>
<td>19.5</td>
<td>17.3</td>
<td></td>
</tr>
<tr>
<td>7th gear (km/h)</td>
<td>30.8</td>
<td>30.5</td>
<td>30.1</td>
<td>29.7</td>
<td>28.8</td>
<td>28.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LOADED

<table>
<thead>
<tr>
<th>Percent grade</th>
<th>0.0</th>
<th>2.0</th>
<th>4.0</th>
<th>6.0</th>
<th>8.0</th>
<th>10.0</th>
<th>12.5</th>
<th>14.3</th>
<th>17.0</th>
<th>20.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>1:12</td>
<td>1:10</td>
<td>1:8</td>
<td>1:7</td>
<td>1:6</td>
<td>1:5</td>
<td>1:4</td>
<td>1:3</td>
<td>1:2</td>
<td>1:1</td>
</tr>
<tr>
<td>1st gear (km/h)</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2nd gear (km/h)</td>
<td>7.2</td>
<td>7.1</td>
<td>7.1</td>
<td>7.0</td>
<td>7.0</td>
<td>6.9</td>
<td>6.9</td>
<td>6.8</td>
<td>6.8</td>
<td>6.5</td>
</tr>
<tr>
<td>3rd gear (km/h)</td>
<td>9.7</td>
<td>9.7</td>
<td>9.6</td>
<td>9.5</td>
<td>9.4</td>
<td>9.3</td>
<td>8.6</td>
<td>7.9</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>4th gear (km/h)</td>
<td>12.8</td>
<td>12.7</td>
<td>12.5</td>
<td>12.4</td>
<td>12.2</td>
<td>11.4</td>
<td>9.9</td>
<td>6.5</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>5th gear (km/h)</td>
<td>16.9</td>
<td>16.6</td>
<td>16.4</td>
<td>16.4</td>
<td>16.2</td>
<td>15.6</td>
<td>14.8</td>
<td>14.8</td>
<td>14.8</td>
<td>13.7</td>
</tr>
<tr>
<td>6th gear (km/h)</td>
<td>22.3</td>
<td>21.8</td>
<td>20.7</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
<td>15.4</td>
</tr>
<tr>
<td>7th gear (km/h)</td>
<td>30.1</td>
<td>28.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GRADE PERFORMANCE

**Volvo TAD1670VE (Tier 4f / Stage IV)**

3% rolling resistance, with lock-up

### EMPTY

<table>
<thead>
<tr>
<th>Percent grade</th>
<th>0.0</th>
<th>2.0</th>
<th>4.0</th>
<th>6.0</th>
<th>8.0</th>
<th>10.0</th>
<th>12.5</th>
<th>14.3</th>
<th>17.0</th>
<th>20.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>1:12</td>
<td>1:10</td>
<td>1:8</td>
<td>1:7</td>
<td>1:6</td>
<td>1:5</td>
<td>1:4</td>
<td>1:3</td>
<td>1:2</td>
<td>1:1</td>
</tr>
<tr>
<td>1st gear (km/h)</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2nd gear (km/h)</td>
<td>7.2</td>
<td>7.1</td>
<td>7.1</td>
<td>7.0</td>
<td>7.0</td>
<td>6.9</td>
<td>6.9</td>
<td>6.8</td>
<td>6.8</td>
<td>6.5</td>
</tr>
<tr>
<td>3rd gear (km/h)</td>
<td>9.7</td>
<td>9.7</td>
<td>9.6</td>
<td>9.5</td>
<td>9.4</td>
<td>9.3</td>
<td>8.4</td>
<td>7.9</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>4th gear (km/h)</td>
<td>12.8</td>
<td>12.7</td>
<td>12.5</td>
<td>12.4</td>
<td>12.2</td>
<td>11.4</td>
<td>9.9</td>
<td>6.4</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>5th gear (km/h)</td>
<td>17.1</td>
<td>17.0</td>
<td>16.9</td>
<td>16.8</td>
<td>16.6</td>
<td>16.5</td>
<td>16.4</td>
<td>16.3</td>
<td>14.9</td>
<td>14.8</td>
</tr>
<tr>
<td>6th gear (km/h)</td>
<td>22.7</td>
<td>22.5</td>
<td>22.3</td>
<td>22.1</td>
<td>21.9</td>
<td>21.6</td>
<td>20.9</td>
<td>19.5</td>
<td>17.3</td>
<td></td>
</tr>
<tr>
<td>7th gear (km/h)</td>
<td>30.8</td>
<td>30.5</td>
<td>30.1</td>
<td>29.7</td>
<td>28.8</td>
<td>28.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LOADED

<table>
<thead>
<tr>
<th>Percent grade</th>
<th>0.0</th>
<th>2.0</th>
<th>4.0</th>
<th>6.0</th>
<th>8.0</th>
<th>10.0</th>
<th>12.5</th>
<th>14.3</th>
<th>17.0</th>
<th>20.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>1:12</td>
<td>1:10</td>
<td>1:8</td>
<td>1:7</td>
<td>1:6</td>
<td>1:5</td>
<td>1:4</td>
<td>1:3</td>
<td>1:2</td>
<td>1:1</td>
</tr>
<tr>
<td>1st gear (km/h)</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2nd gear (km/h)</td>
<td>7.2</td>
<td>7.1</td>
<td>7.1</td>
<td>7.0</td>
<td>7.0</td>
<td>6.9</td>
<td>6.9</td>
<td>6.8</td>
<td>6.8</td>
<td>6.5</td>
</tr>
<tr>
<td>3rd gear (km/h)</td>
<td>9.7</td>
<td>9.7</td>
<td>9.6</td>
<td>9.5</td>
<td>9.4</td>
<td>9.3</td>
<td>8.6</td>
<td>7.9</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>4th gear (km/h)</td>
<td>12.8</td>
<td>12.7</td>
<td>12.5</td>
<td>12.4</td>
<td>12.2</td>
<td>11.4</td>
<td>9.9</td>
<td>6.4</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>5th gear (km/h)</td>
<td>17.1</td>
<td>17.0</td>
<td>16.9</td>
<td>16.8</td>
<td>16.6</td>
<td>16.5</td>
<td>16.4</td>
<td>16.3</td>
<td>14.9</td>
<td>14.8</td>
</tr>
<tr>
<td>6th gear (km/h)</td>
<td>22.7</td>
<td>22.5</td>
<td>22.3</td>
<td>22.1</td>
<td>21.9</td>
<td>21.6</td>
<td>20.9</td>
<td>19.5</td>
<td>17.3</td>
<td></td>
</tr>
<tr>
<td>7th gear (km/h)</td>
<td>30.8</td>
<td>30.5</td>
<td>30.1</td>
<td>29.7</td>
<td>28.8</td>
<td>28.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DIMENSIONS

Sandvik THS45i