Utimec LF 090 D

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Pictures may include options and additional equipment.

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INTRODUCTION

LF 090 is typically used in tunneling projects with medium size tunnel cross sections. The maximum payload capacity is 16 t. The dump box capacity is 9 m^3 and the tipping angle of the box is 65 degrees. The maximum height during tipping is 4.4 m. The dump box features a hatch which can be opened when the box is empty. This provides a good visibility when reversing.

POWER TRAIN

L-series units have a powerful 6-cylinder liquid cooled turbo-charged 185 kW Volvo Penta engine. Available emission standards are Tier 3 / Stage IIIA and Stage V, providing clean and efficient operation.

The vehicle is equipped with a Dana hydrodynamic transmission and planetary type axles which have hydraulically powered dual-circuit, oil immersed multidisc service brakes. Moreover, the axles feature a spring applied, hydraulically released fail-safe -type parking/safety brake.

SAFETY AND USABILITY

The vehicle has a front axle suspension system, which improves safety, driving comfort and extends component lifetime.

Normet's FOPS- and ROPS approved cabin provides superior visibility and a comfortable environment for the driver and passenger.

Cabin controls are easy to use and ergonomic, and the multifunctional display (MID) displays driving information (speed, RPM, temperatures, safety warnings and alarms etc.), which can be recorded for further analysis.
The enclosed cabin provides a low noise level ensuring safe and comfortable driving.

The electric system is designed for harsh underground environments. In addition, the vehicle layout allows easy access to all service points, and all daily checks can be done from the ground level.

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TECHNICAL SPECIFICATION

DUMP BOX

Volume	9 m^3
Tipping angle	65º
Tipping height	4260 mm

ENGINE AND TRANSMISSION

- **Volvo Penta TAD851VE, 185 kW/2200 rpm, with engine brake, Tier 3 / Stage IIIA approved**

  Exhaust system:
  - Catalytic exhaust gas purifier and muffler
  - Diesel particulate filter (DPF)

  Fuel tank capacity: 280 l

  Dana T14 series powershift transmission with lock-up

  4 speeds forward and 3 reverse

  4-wheel drive

  Gear selector:
  - Manual
  - Automatic

- **Volvo Penta TAD881VE, 185 kW/2200 rpm, with engine brake, Stage V approved**

  Requires diesel exhaust fluid (DEF) and Ultra-low sulphur diesel (ULSD)

  Diesel particulate filter (DPF)

  Selective catalytic reduction (SCR)

  Fuel tank capacity: 280 l

  DEF tank capacity: 25 l

  Dana T14 series powershift transmission with lock-up

  4 speeds forward and 3 reverse

  4-wheel drive

  Gear selector:
  - Manual
  - Automatic

PERFORMANCE

Tramming speed (horizontal)	28 km/h
Lateral gradient for tramming (continuous)	4º
Longitudinal gradient for tramming (continuous)	9º

Depending of machine configuration, lateral and longitudinal tramming gradient can temporarily be higher.

AXLES AND BRAKES

Load end axle:

Dana 113 series fixed

Engine end axle:

Dana 113 series

Hydro-pneumatic suspension and +/– 7° oscillation

Service brake: hydraulically powered dual-circuit oil immersed multidisc brakes in both axles

Safety/Parking brake: spring applied hydraulically released fail-safe -type brake

Brake testing possible from cabin

TYRES AND RIMS

- Nokian Tyres 14.00–24” with NDT inspected rims
- Bridgestone 14.00–24” Tubeless tires NDT inspected rims with Mechanical Interference Device

STEERING

Orbitrol type hydraulic frame steering

Frame articulation	+/– 40°

HYDRAULIC SYSTEM

Variable displacement pump system:

190 bar, 135 l/min at 2200 rpm

Hydraulic oil tank capacity	180 l

DRIVER'S COMPARTMENT

Cabin type:
- Open cabin FOPS/ROPS approved
- Enclosed cabin FOPS/ROPS approved

Driver's seat and seat belt:
- Air suspended T-back seat with 3-point seat belt
- Air suspended heavy duty seat with 3-point seat belt

Cabin door interlock switches with safety brake application

Passenger's seat:
- T-back seat with 3-point seat belt
- Heavy duty seat with 3-point seat belt
- 2 seats with retractable lap seat belts (n/a with side facing pedals)

Throttle and brake pedal layout:
- Front facing pedals
- Front and side facing pedals with seat swivel

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MACHINE CONNECTIVITY

Machine connectivity hardware (WLAN/3G/4G/LTE)

Connectivity services:
- Analytics license for three years (includes access to analytics portal)
- Remote monitoring for one year

24 VDC ELECTRICAL SYSTEM

LED driving and indicator lights

LED work lights

LED side lights

Warning LED light:

Color
- Amber
- Blue
- Red
- Green (n/a with rotating light pattern)
- White (n/a with rotating light pattern)

Light pattern
- Strobe
- Rotating

TECHNICAL DOCUMENTATION

Standard documents:

Instruction manuals, hard copy 2 pcs:
- English
- One of destination EU languages

Spare parts manuals, hard copy 2 pcs:

English

PDF manuals on USB-stick 2 pcs, includes instruction and spare parts manuals

Additional documentation:
- Extra hard copies of manuals
- Extra PDF manuals
- LinkOne WebView electronic manuals
- Other than standard language manuals

OTHER

Powder extinguisher:
- 6 kg
- 12 kg
- Ansul Sentry

Number of extinguishers:
- 1
- 2

Painting and taping:
- Standard painting and taping
- Painting and taping according to customer specifications

Text labels in:
- En/One of destination EU-languages
- Other language

Measurements:
- Noise
- Vibration
- Emissions

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ACCESSORIES

PROCESS PRODUCTIVITY

- Front support legs
- Retarder

CARRIER PRODUCTIVITY

Accessories for open cabin:
- Protective grids

Accessories for enclosed cabin:
- Two-piece windscreen
- Sliding rear window
- Cabin pressurization and air filtration system (ISO 23875-compliant)
- Audio system
- Air conditioning with heating
- Heated mirrors

- 12 V, 20 A power supply in cabin with socket and connector
- Auto engine shutdown during idling
- Engine shutdown delay
- Inlet plug for jump start
- Block heater with interior heater and battery charger 230 V (Interior heater available with enclosed cabin)
- Fast fuel filling system
- 24 VDC operated pump for filling of hydraulic tank
- Fluid evacuation panel with sampling points
- Automatic lubrication system
- Reversing camera:
  - 1 camera, 1 display
  - 3 cameras, 3 displays
  - 1 camera, 1 display and reversing radar
  - 4 cameras, 1 displays with recording support
- Spare rim and tyre
- Toolbox and maintenance tools
- Interior cooling fan
- Wax tape for electric connectors

SAFETY

- Cabin door puddle lights
- Extra warning LED light

  Color
  - Amber
  - Blue
  - Red
  - Green (n/a with rotating light pattern)
  - White (n/a with rotating light pattern)

  Light pattern
  - Strobe
  - Rotating
- Direction lights (Green/Red)
  - Both lights always on
  - Lights follows driving direction
- Extra warning LED light with battery backup

  Color
  - Amber
  - Blue
  - Red
  - Green (n/a with rotating light pattern)
  - White (n/a with rotating light pattern)

  Light pattern
  - Strobe
  - Rotating
- Seat belt interlock switch applies safety brake
- Fire extinguisher system
  - Ansul A-101 dry chemical
    - Manual activation
    - Automatic detection, Checkfire 210
  - Ansul LVS Liquid agent
    - Manual activation
    - Automatic detection, Checkfire 210
- Gear lockout:

  Forward:
  - Highest gear locked out
  - 2 highest gears locked out

  Reverse:
  - Highest gear locked out
  - 2 highest gears locked out
- Engine end safety rails and ladder
- Grounding straps:
  - Flat cable
  - Chain
- Emergency pump for brake release and steering
- Redundant brake monitoring system
- Protection guards for tunnel curtains
- Tyre pressure indicators
- Warning triangles
- Flashlight with charger
- Wheel chocks with brackets
- Service isolator for starter

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SERVICES

NORMET SERVICES

Normet is committed to servicing its customers all over the world. We provide service from a single machine to an entire fleet. The Normet service offering consists of many different products from delivery of parts and training to fleet performance agreements.

More information check normet.com:

https://www.normet.com/en/products-and-services

For any questions about Normet Services contact local Normet.

https://www.normet.com/en/contact/

SPARE PARTS

As a leading global Original Equipment Manufacturer, we are committed to providing a complete solution to your spare parts needs. All of Normet' s spare parts are manufactured to the highest possible standards to help maintain the safety and profitability of your projects. Our spare parts improve efficiency and total cost of ownership throughout your operations.

Start a carefree journey with Normet equipment by having the right selection of parts available from the beginning.

Spare part recommendation / Start-up Spare Part package: Available for the first 2000h*: includes periodical service parts, most common wearing parts and other recommended parts. (*Recommendations are based on average hours that can vary depending on worksite conditions.)

Underground, every part is critical!

More information check https://www.normet.com

SERVICE AGREEMENTS

Service agreements are always customized to meet our customer needs, consisting of various Normet service products. The service solution is created together with the customer and the level of an agreement can vary with different support agreements (including e.g. parts, periodical maintenance, on-call services, and audits) up to guaranteed fleet availability or process performance (including e.g. parts, all maintenance activities, operator trainings and process audits).

Note that we can provide Digital solutions with connected equipment.

More information check normet.com.

TRAININGS

Training services can be tailored to your individual needs and range from equipment service training to process application training.

We offer a sustainable training path from the beginning of your operation to the execution stage of your project.

More information check normet.com.

COMMISSIONING

Equipment commissioning concerns **equipment familiarization**. This is included as part of Normet vehicle delivery. Safety introduction and operating basics for Normet Equipment. Review of Normet user and spare parts manuals. Hands-on equipment safety device operational training. Ensure product quality and customer satisfaction during handover.

Commissioning includes machinery handover to customers and **safety operating principles** without technical insights or process application training.

EXTENDED COMMISSIONING

We offer an extended training package on top of standard commissioning. Normet provides extended commissioning services that offer basic insights into maintenance manuals, periodical and daily maintenance, as well as modern operating perspectives to maximize handling efficiency. Safety-oriented training ensures reliable operations for breaker boom systems. This cost-effective solution covers the essential aspects of equipment operation, safety, and maintenance schedules.

To ensure continuous and maximized safe operations with your new equipment and to expand your knowledge scale of operations, this option is the most suitable and recommended option for extending your new equipment training. This cost-effective solution covers the essential aspects of equipment operation, safety, and maintenance schedules.

UPGRADES AND MODIFICATIONS

We build our machines to last. We also understand that your needs on the ground can change - and reacting to that change makes a big difference in your productivity. Normet Upgrades & Modifications provide you with access to product improvements that meet your evolving requirements and let you stay one step ahead of the curve.

Contact your local Normet office for Upgrade offering to your fleet.

More information check normet.com.

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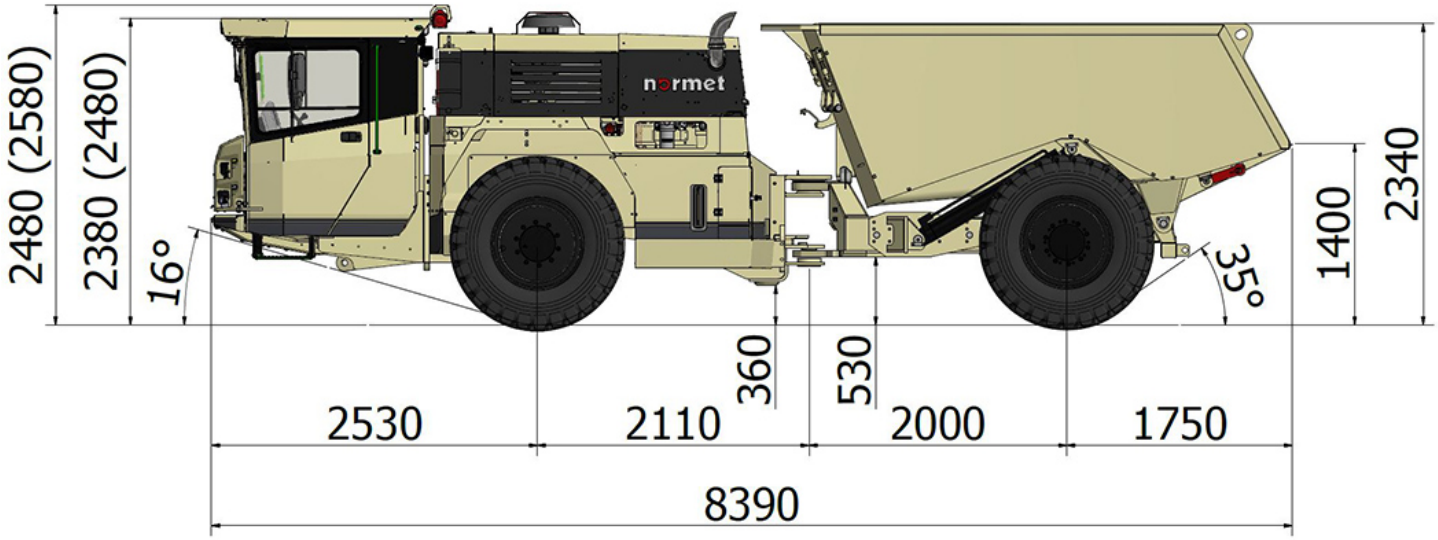
DIMENSIONS

Length	8390 mm	Track	1920 mm
Width	2300 mm	Ground clearance as shown	360 mm
Height	2480 mm	Turning radius outer	7090 mm
Height of cabin	2380 mm	Turning radius inner	4460 mm
Wheel base	4110 mm		

SIDE VIEW – BASIC MACHINE

Dimensions in () apply when the cabin is installed in the upper position.



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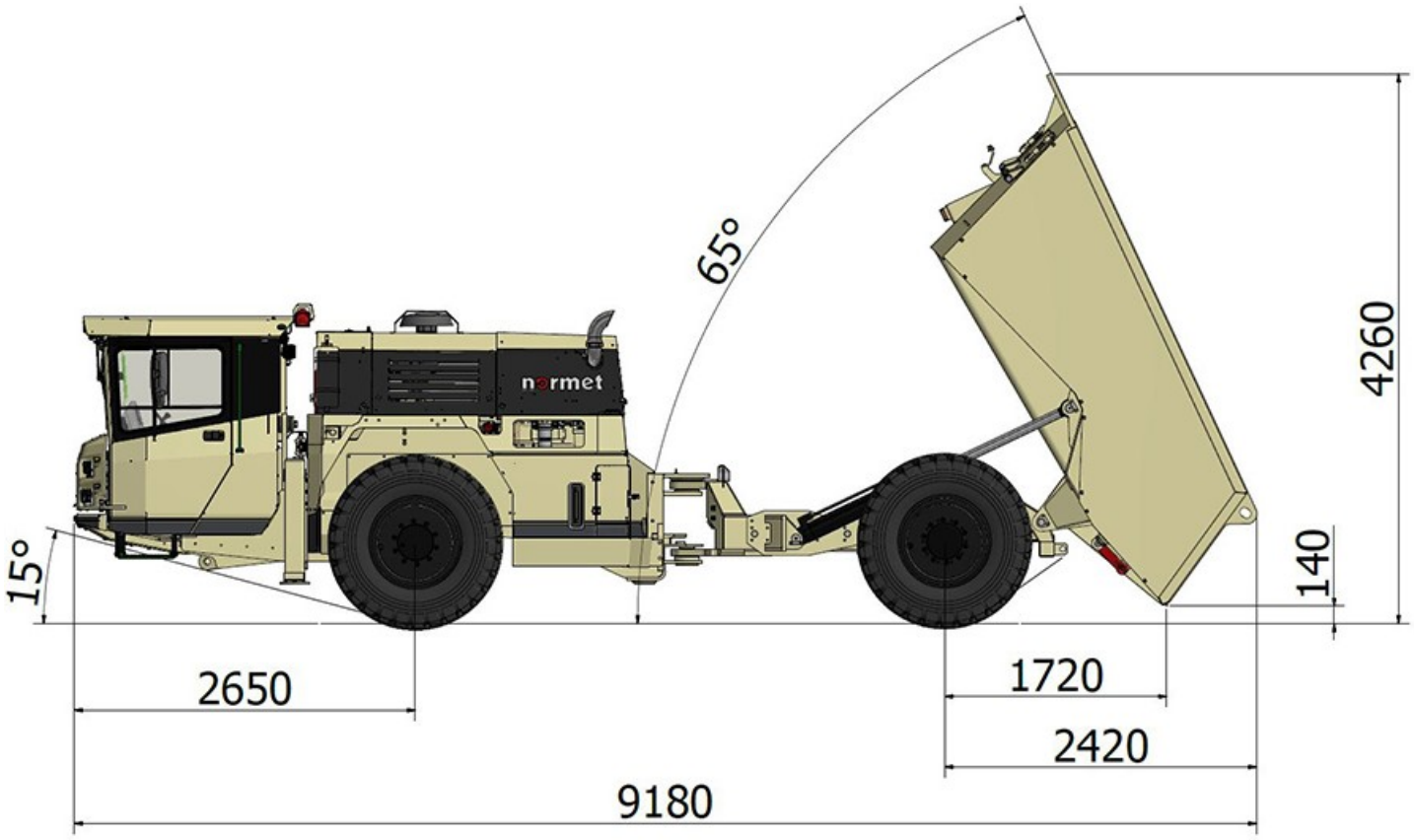
SIDE VIEW – MACHINE WITH OPTIONS



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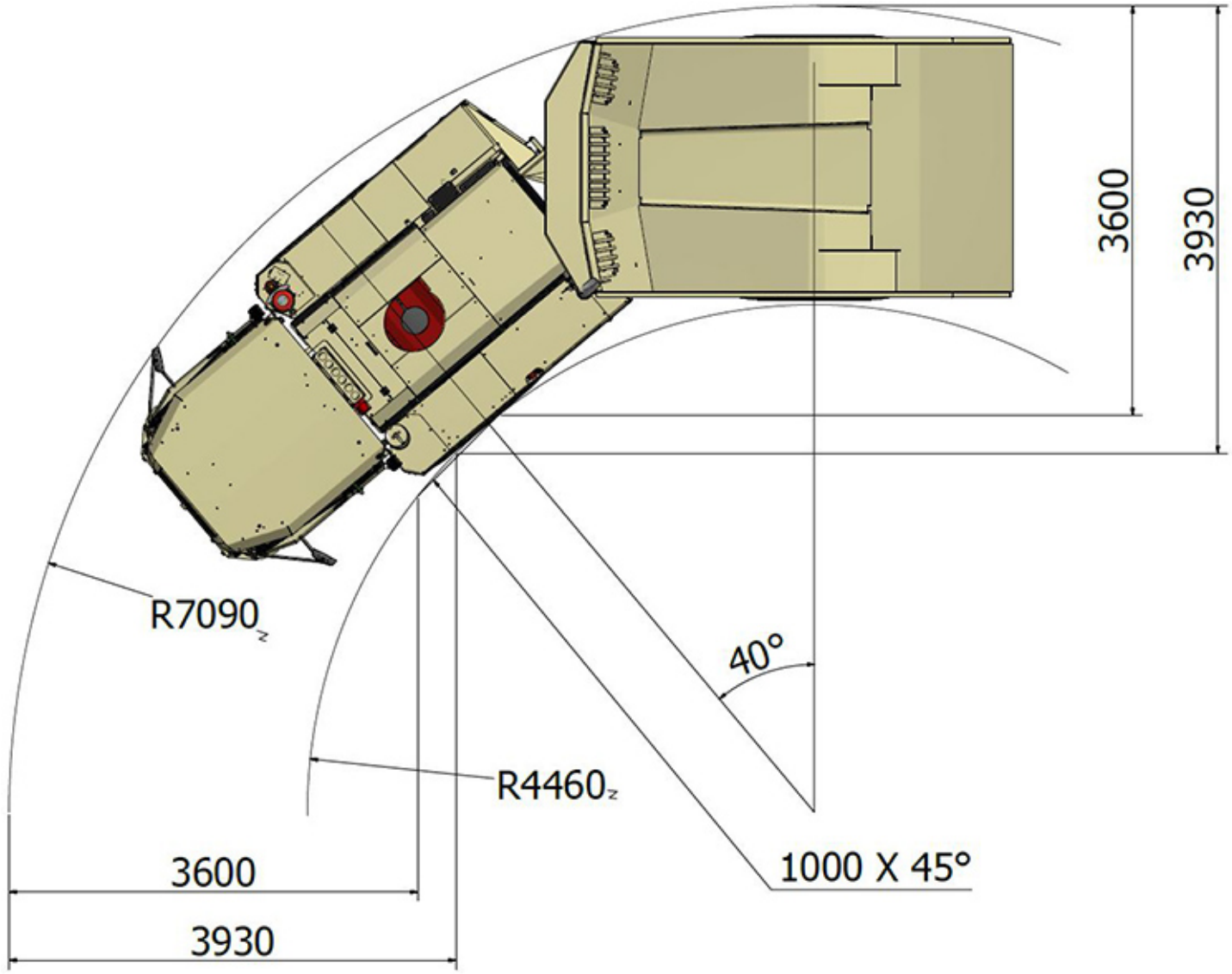
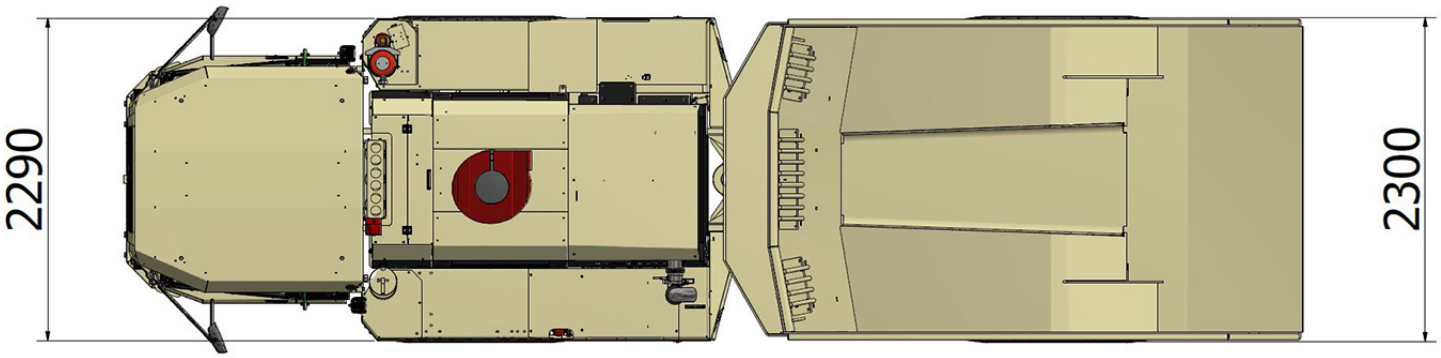
TURNING RADIUS



TOP VIEW



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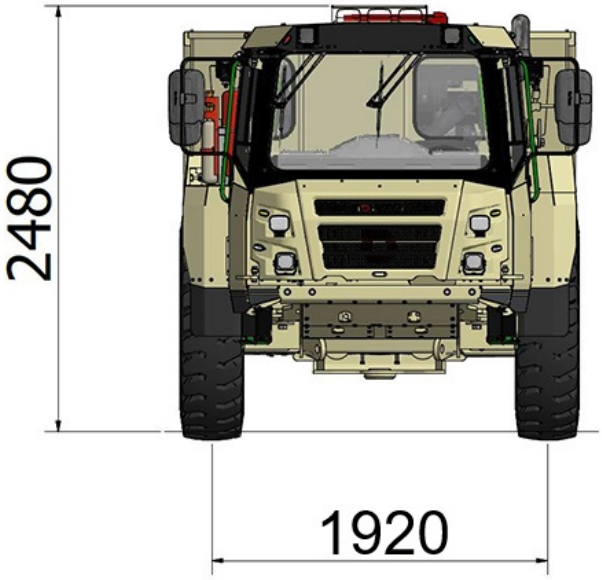
FRONT VIEW



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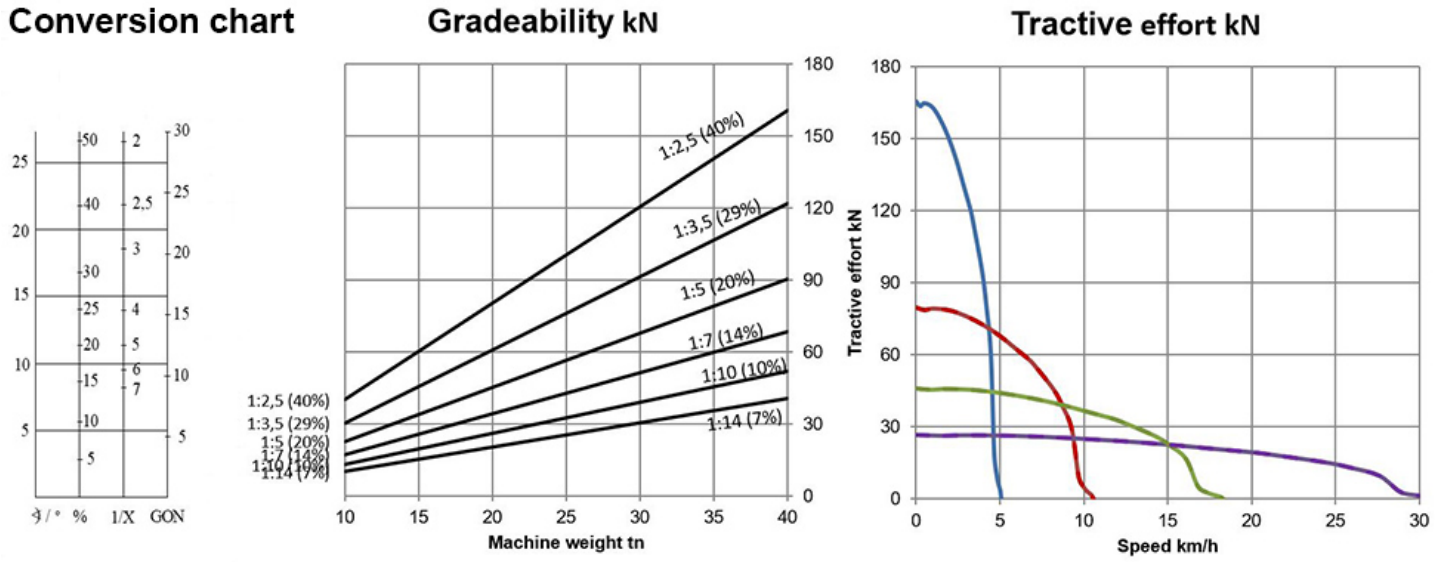
TRACTIVE EFFORTS

OPERATING WEIGHT

Empty	13 000 kg
Fully loaded	29 000 kg

final machine weight variate in agree with selected options

VOLVO PENTA TAD851/881 185 KW WITH 14.00-24" TIRES

Performance curve with turbine lock-up DOC059932