



*This image includes options and extra equipment.*

## Features

Tornado Tier III is a robust concrete mixer and transport machine, diesel hydraulically driven with 4 m<sup>3</sup> concrete capacity. The main characteristics of this equipment is the high reliability and the easily and low cost maintenance.

The powerful liquid cooled turbo charged Deutz TCD 2013 L4 TIER 3 approved engine provides clean and efficient operation and gives maximum speed of 8 km/h fully loaded in upward inclined 1:7 tunnel. In horizontal tunnel the maximum speed is 18 km/h.

The cabin provides superior visibility and comfortable compartment for the driver.

All daily checks can be done from the ground level.

Normet reserves the right to change this specification without further notice.

### Technical specifications

#### ENGINE

Liquid cooled turbo charged Deutz TCD 2013 L4, 120kW/2300 rpm, TIER 3 approved.

#### EXHAUST SYSTEM

Catalytic exhaust gas purifier and muffler

#### TRANSMISSION

Hydrostatic 4-wheel transmission  
Variable piston pump 125 cm<sup>3</sup>  
Variable piston motor 140 cm<sup>3</sup>  
Stainless steel hydraulic oil tank

#### AXLES

Planetary type  
Dana 212  
Front end axle fixed  
Rear end axle oscillation +/- 7°

#### TYRES

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#### PERFORMANCE

Fully loaded maximum speed:  
Horizontal: 18km/h  
Upward inclined 1:7 tunnel: 8 km/h.  
Full charged 30% max gradient (according to SAE)

#### STEERING

Four-wheel steering as standard  
Orbitrol type  
Including crabwalk

#### BRAKES

Service brake: hydraulically powered two-circuit oil-immersed multi-disc brakes in both axles  
Safety/Parking brake: spring-activated, hydraulically released, fail-safe-type brake.

#### HYDRAULIC CIRCUITS

Three separate circuits with one common oil tank

- *TRAMING*: Hydrostatic transmission DA control, speed controlled by system pressure.
- *MIXING DRUM*: Hydrostatic transmission, electronic speed control.
- *SERVICE*: Gear pump for steering, brakes and water pump.

Hydraulic oil tank: 270L

#### MIXING DRUM

Maximum capacity 4m<sup>3</sup>  
Two-directional hydraulic rotation for charging/mixing, and discharge.  
Rexroth hydraulic engine driven by Rexroth variable caudal pump with electric speed regulation.

#### WATER SYSTEM

Water pump driven by hydraulic gear motor.

- Water flow analog control.
- Water cleaning hose length: 15m
- Water tank: 270L

#### CHASSIS

HS. tubular steel beams, specially designed for heavy duty applications.

#### DRIVER'S COMPARTMENT

Suspended driver's seat  
Seat with retractable (75 mm wide) lap seat belt  
The driver's compartment with driving controls and pedals.  
VDO gauges (IP65):

- Master Gauge: Engine RPM  
Hourmeter  
Voltmeter  
Fuel Consumption  
Turbocharger pressure
  - Fuel level
  - Engine temperature
- Window kit is included

#### FUEL TANK

Capacity 200 L. Stainless steel.

#### 24 VDC ELECTRICAL SYSTEM

Exposed components are min. IP 65 standard  
Battery 2 x 80 Ah  
Alternator 55 A  
Wire harness (self extinguishing) with tinned wires and watertight conduits  
LED driving lights:

- Front end, LED lights 2 x 1300 lm
- Rear end, LED lights 2 x 1300 lm

Service brake lights  
LED directional lights on front and back side

#### WORKING LIGHTS

24 VDC LED lights

### Additional Equipment

#### FIRE SUPPRESSION SYSTEM

**Fogmaker:** Automatically and manually actuated.

#### ENCLOSED CABIN

**Cabin ventilation:**

- Cabin Heating
- Air conditioning.

#### SPARE WHEEL

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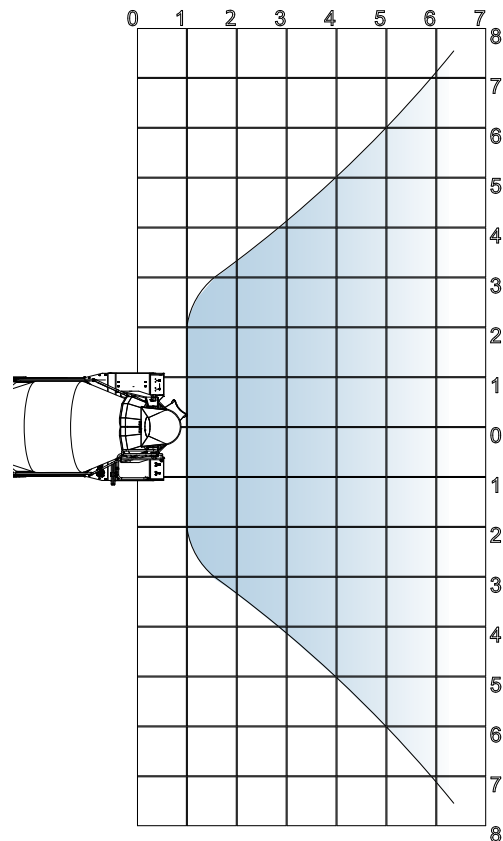
#### SAFETY EQUIPMENT

**Reversing camera**

- Infrared LEDs for ultra-low light performance
- Illumination distance 5m
- Heater
- Day/Night sensor

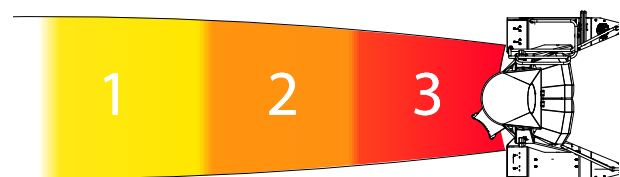
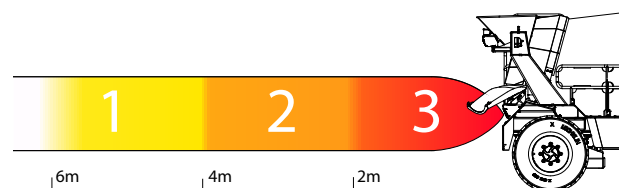
**Obstacle detection system**

- Two units ultrasound sensor , adjustable detection distance up to nine meters.
- Two units ultrasound sensor, fix detection distance for blind spots.
- Cabin display with audio and visual signals.



#### TOP VIEW

Reversing camera coverage diagram.

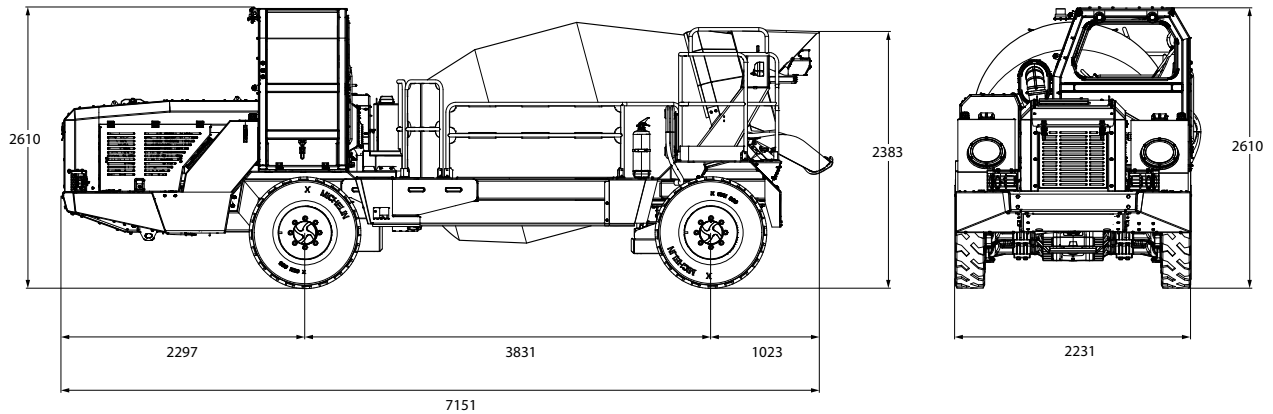


#### TOP AND SIDE VIEW

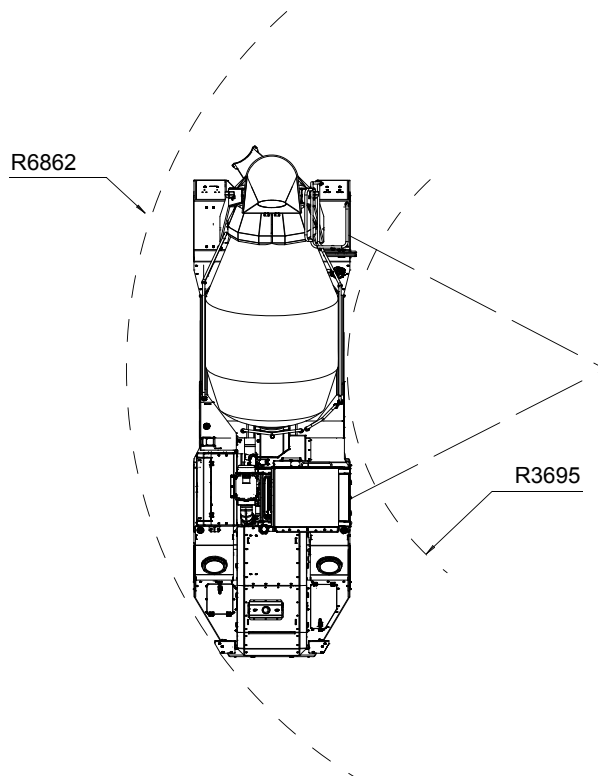
Obstacle detection system diagram.

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### Dimensions



Side and Front view



### Turning radius

#### DIMENSIONS

Width	2231 mm
Long	7151 mm
Height	2610 mm
Wheel base	3831 mm

#### TURNING RADIUS

Outer	6862 mm
Inner	3695 mm

#### WEIGHT

Unloaded	8000 kg
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