



Pictured machine may include options and additional equipment.

## Features

Charmec MF 050 D is underground self-propelled diesel driven rubber tired unit intended for mechanized charging of blast boreholes by emulsion explosives in underground mines. Machine layout is designed to work together with external mixing and charging module (separate delivery). Charging controls with hose length and speed information are integrated to carrier control system, which removes need to handle two separate controls while working.

Improved spraying boom SB 500 B includes strengthened steel structure, modified joints and has larger diameter hydraulic cylinders to give more power for smooth boom operations.

The liquid cooled turbo charged 120 kW Deutz or 110 kW MB TIER 3 approved engine provides clean and efficient operation and gives maximum speed of 5 km/h in upward 1:7 inclined tunnel.

The FOPS /ROPS approved safety canopy / cabin with pivotal instrument console provides comfortable compartment for the driver and his assistant and superior visibility forwards and backwards. The enclosed cabin provides noise level < 75 dB. The Norsmart CAN bus carrier control system comes with fault diagnostics. Self-extinguishing marine type wire harness with tinned wires and water tight conduits are specially designed for safe and reliable operation in hard underground conditions. All daily checks can be done from the ground level.

## Technical specification

### SPRAYBOOM SB 500 B

Boom rotation 270°

- Boom lifting -20°...+69°
- Boom folding -60°...+165°
- Extension 2200 mm
- Nozzle rotation 420°
- Nozzle tilting 105°

### DRIVER'S COMPARTMENT

- MID 070 S Multifunctional Display with:
- Meters; e.g. speed, RPM, operating hours
- Status indicators; e.g. fluid levels, temperatures, pressures, alarms, faults
- The enclosed FOPS/ROPS Certified operator's cab Heater with blower. Windscreen wiper and washer.
- Suspended adjustable seat with retractable lap seat belt.
- Additional pulldown seat for co-driver
- Two rear view window
- Cabin door interlock switch with safety brake application

### MACHINE CONNECTIVITY

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

### ENGINE

Deutz TCD 2013 L04	120kW
In-line 4 cylinder liquid cooled turbocharged diesel engine with electronically controlled fuel injection.	161 hp
The engine is equipped with catalytic converter, and approved for use in the mines.	2200rpm

### TRANSMISSION

Dana 24 000 series power shift with pump drive group  
3 speeds forward and reverse  
4-wheel drive

### TYRES

12.00 - 20 PR 20

### AXLES

Planetary type rear axle fixed  
Oscillation lock

### PERFORMANCE

1st gear max.	5 km/h
2nd gear	10 km/h
3rd gear	25 km/h
Max. tractive effort	133 kN

### BRAKES

Service brake: hydraulically powered dual-circuit oil immersed multidisc brakes in both axles  
Safety/Parking brake: hydraulically released fail-safe -type brake

### EARTHING OF THE MACHINE:

- 2 earthing chain 12 mm in diameter and with length making enable 250 mm laying on the ground (in rear and front).
- Bolt with finger nut on the right side with earthing symbol for connecting to earthing net.

### REMOTE CONTROL

- Radio control with 10m cable support.
- English or Russian text in control unit with brightness adjustment.
- Joystick with safety interlock bar
- Equipped with emergency knob
- Equipped with shoulder hooks

### STEERING

Hydraulic frame steering  
Orbitrol type  
Frame articulation +/- 40°  
Front axle oscillation +/- 10°

### FUEL TANK

Capacity 110 L  
Hydraulic oil tank capacity 115 L

### HYDRAULIC SYSTEM

Pressure setting 190 bar, 99 L/min/2200 rpm

### 24 VDC ELECTRICAL SYSTEM

CAN Bus controlled process control system with fault diagnostics.  
Carrier electric functions NGE2.  
Exposed components are min IP 65 standard.  
Wire harness (self extinguishing) with tinned wires and water tight conduits.

Negative ground	24V
Battery	2 x 115 Ah
Alternator	100 A
Driving and working light type	LED
Driving lights in front	4 x 18 W
Driving lights reverse	2 x 18 W
Working lights in front (on cabin)	4 x 43 W
Working lights in rear (1 - 1,5 high)	2 x 43 W
LED lights on the boom	
Stoptlights, rear lights;	

Turning lights;  
Lights and horn of rear moving

Battery switch	
Horn	
Rotating beacon;	Amber

### GREASING SYSTEM

Centralized grease fittings for the carrier and boom

### OTHER

- 2 x 12 kg hand held fire extinguisher
- Standard symbol labels

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

## Optional equipment

### ENGINE

Liquid cooled turbo charged Mercedes- Benz 904 LA,  
110 kW/2200 rpm, TIER 3 approved:

1st gear max.	5 km/h
2nd gear	10 km/h
3rd gear	25 km/h
Max. tractive effort	120 kN
Max speed in upward 1:7 inclined tunnel	7 km/h
Performance curve	100006272

### MACHINE CONNECTIVITY

- Data lifetime license (Include connectivity hardware)
- Analytics lifetime license (Include connectivity hardware and data lifetime license)

### OPTIONAL EQUIPMENT

Warning light, 1 unit:

- Rotating beacon; red, blue
- Strobe light; amber, red, blue or white

## Additional equipment

### SUSPENSION

- Hydraulic front axle suspension (Including hydraulic front support legs)

### FOR ENCLOSED CABIN

CD/Radio System

Cabin ventilation:

- Cabin heating
- Air conditioning

### FIRE SUPPRESSION SYSTEM

Fogmaker: Manually or automatically actuated

Ansul: Manually or automatically actuated

### GREASING SYSTEM

Automatic lubrication system (Lincoln) for:

Carrier or carrier and lifter

### OTHER

Installation for external emulsion charging system

- CE marking for Normet carrier and external emulsion charging system installation

Extra hand held fire extinguisher (12 kg)

Fast fuel filling system: Wiggins

Hand pump for filling oil (for hydraulic, transmission and engine)

High pressure washer unit with a hose 15 m (water connection to network or water tank)

Jump start connections

Oil evacuation kit with sample points

Pump for towing

Hydraulic front support legs

Warning lights, 1 unit:

- Rotating beacon; amber
- Rotating beacon; red
- Rotating beacon; blue
- Strobe light; amber
- Strobe light; red
- Strobe light; blue
- Strobe light; white

Text labels in: Fin / En / Por / Swe / Rus / Nor / Ger / Fra / Spa / Ita

Operator's tool kit

50 mm yellow reflective tapes on both side of the unit

Toolbox and maintenance tools

2 wheel chocks with brackets

Reversing camera

Spare wheel with tyre

Spare rim

## Service

### OPERATIONAL SPARE PARTS

**Spare parts package A:** Available for 1000 h of use\*. Include periodical service, most common wearing parts and most critical safety parts.

**Spare parts package B:** Available for 3000 h of use\*. Include periodical service, most common wearing parts and most critical safety parts.

\*Recommendations are based on average hours - can vary a lot depending on work site conditions.

### EXTENDED WARRANTY

Standard Normet equipment warranty is 2000 operation hours or 12 months (whichever is reached first). Extended warranty for your Normet equipment can be provided with service agreement- conditions apply.

### TRAINING AND EXPERTISE SERVICES

Need training before your machine goes into service or any stage during its working life? The Normet Academy and our highly skilled technicians can provide all your expert training needs including...

#### Product training:

Operation and Maintenance

Automation -NorSmart/Nordoser

Electric, hydraulic and mechanical fundamentals

Trouble-shooting and fault finding

#### Process & operator improvement audit for:

Concrete spraying - practical or simulated

Charging

Scaling - practical or simulated

#### Audit services to improve:

Equipment performance, machine availability, safety & quality.

### SERVICE AGREEMENTS

Parts supply

Periodic fleet inspection

Preventative maintenance

Maintenance Supervision

Fleet availability

### ELECTRONIC MANUALS

LinkOne electronic spare parts and instruction manuals

### EQUIPMENT - COMMISSIONING & START UP SERVICES

#### Operator Training

- Class room training
- Practical training

#### Maintenance & Repair Training

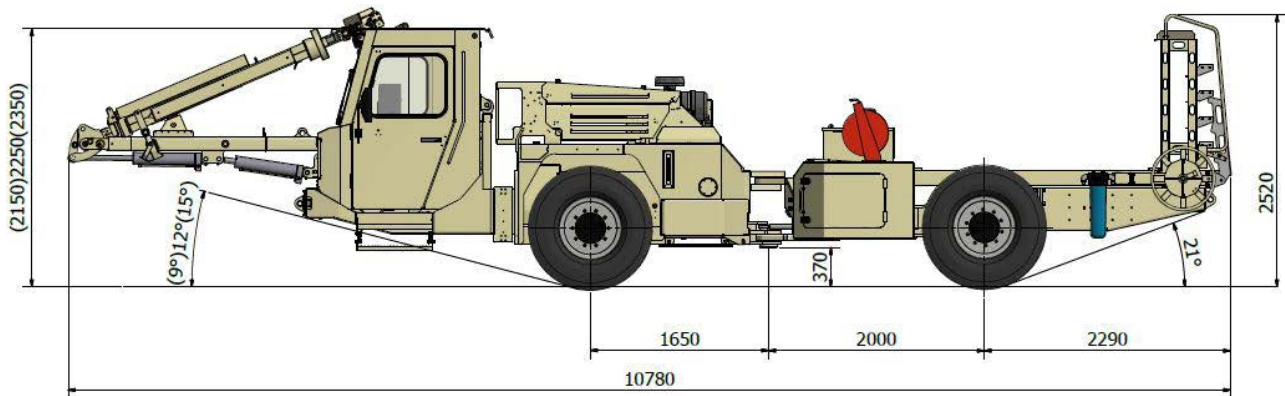
- Class room training
- Practical training

#### Commissioning

- Receiving inspection

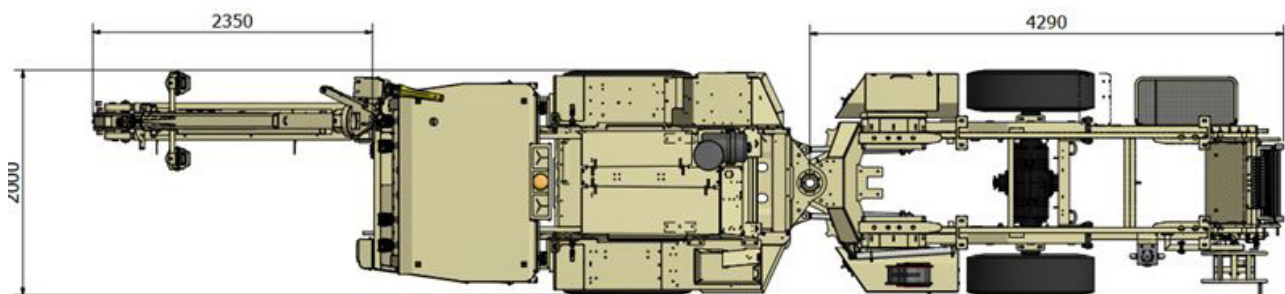
## Charmec MF 050 D Robot

### Dimensions



SIDE VIEW

Basic machine



TOP VIEW

#### DIMENSIONS

Length	10800 mm
Width	2000 mm
Height	2700 mm
Wheel base	3650 mm
Ground clearance as shown	370 mm

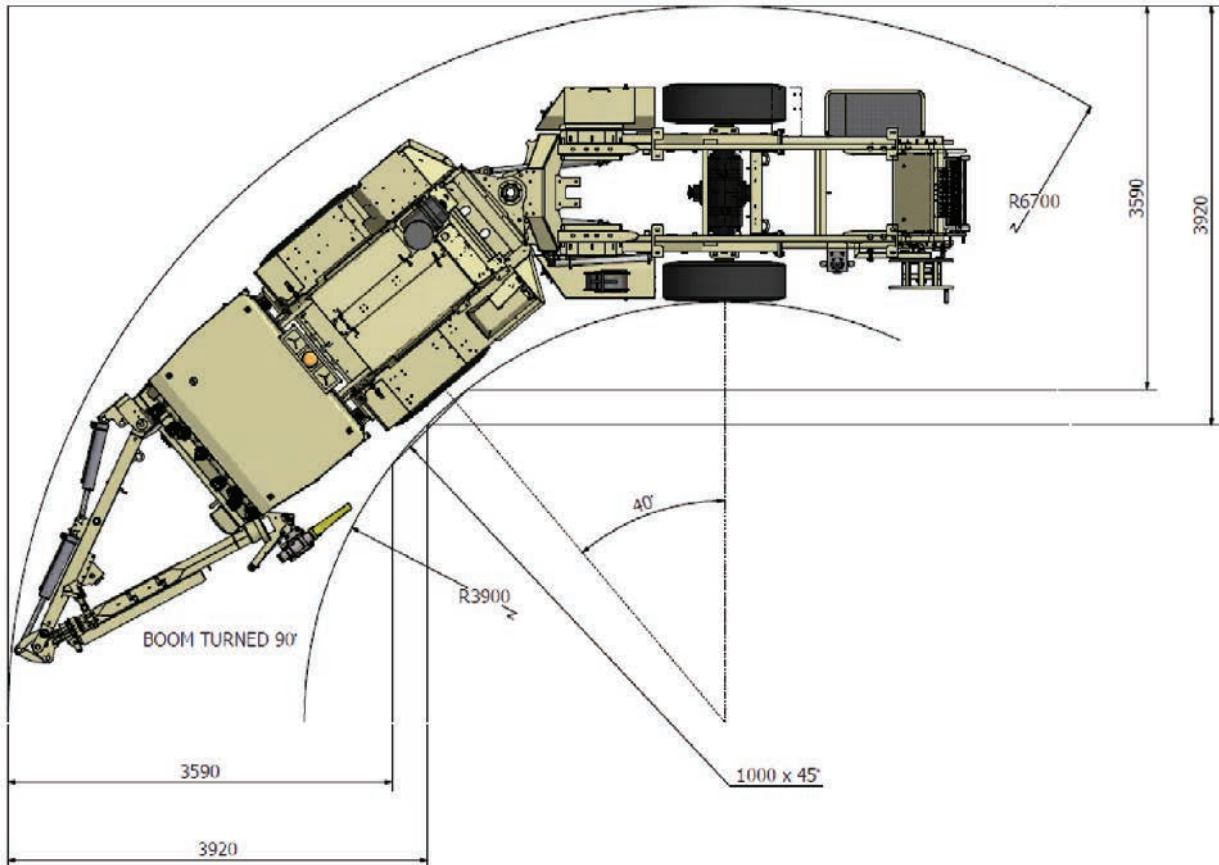
#### TURNING RADIUS

Outer	6700 mm
Inner	3900 mm

#### WEIGHT

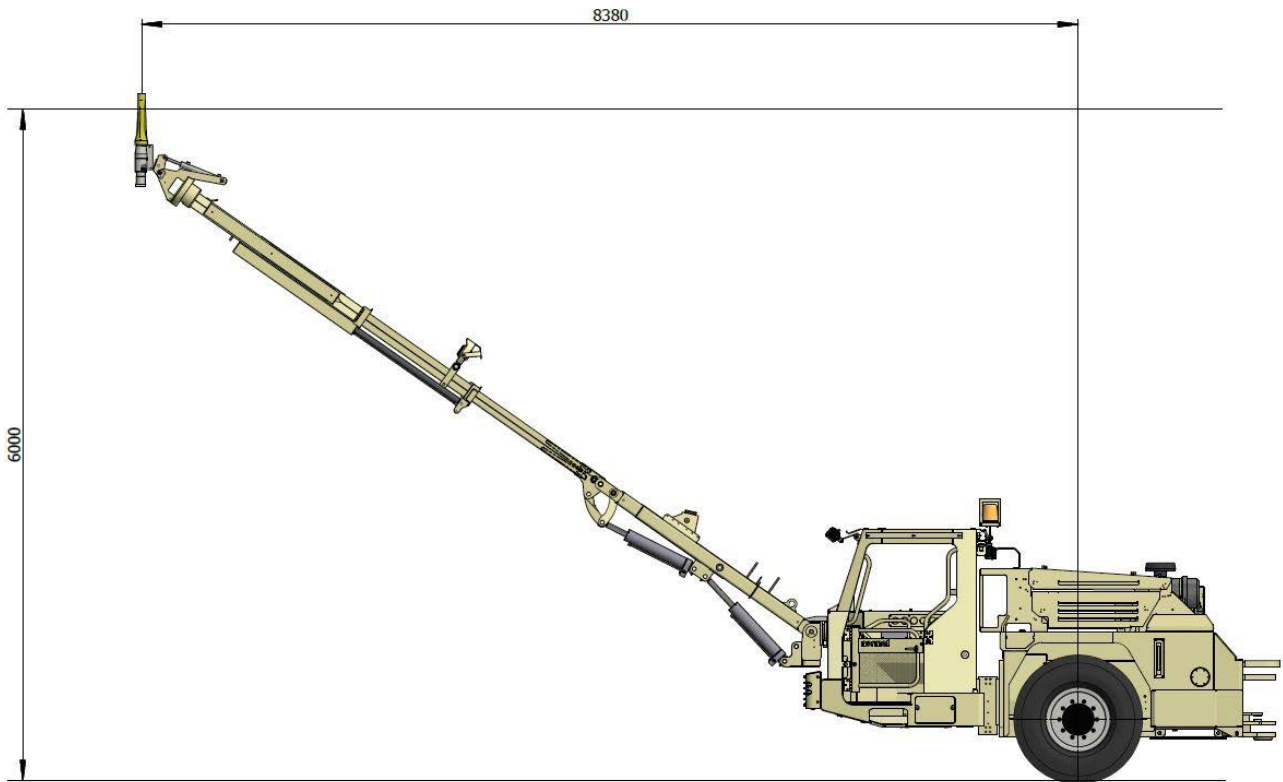
Operating	14 000 kg
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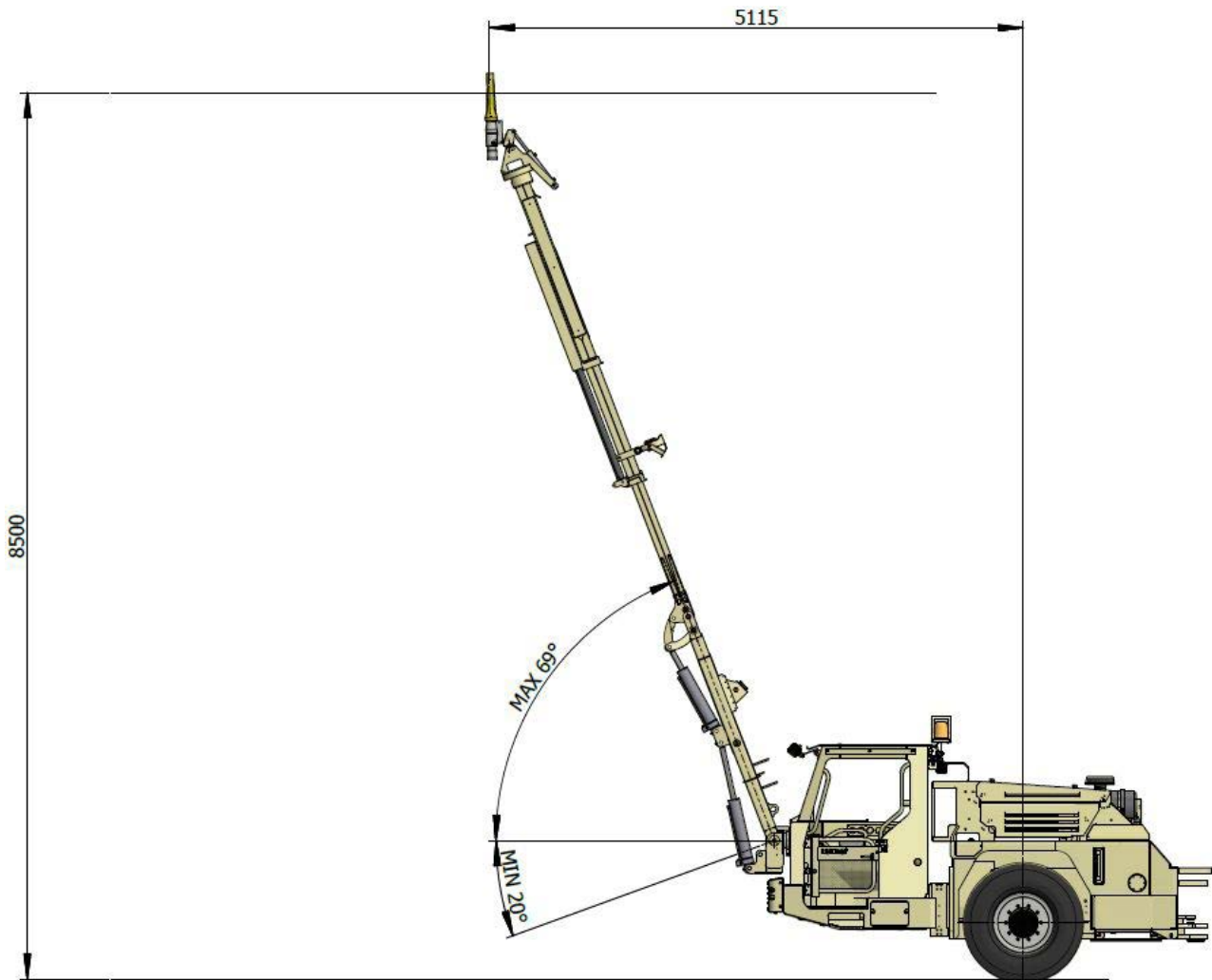
**TURNING RADIUS**

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**BOOM REACH**

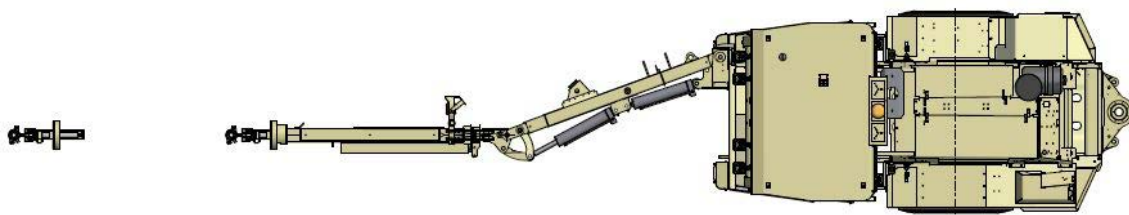
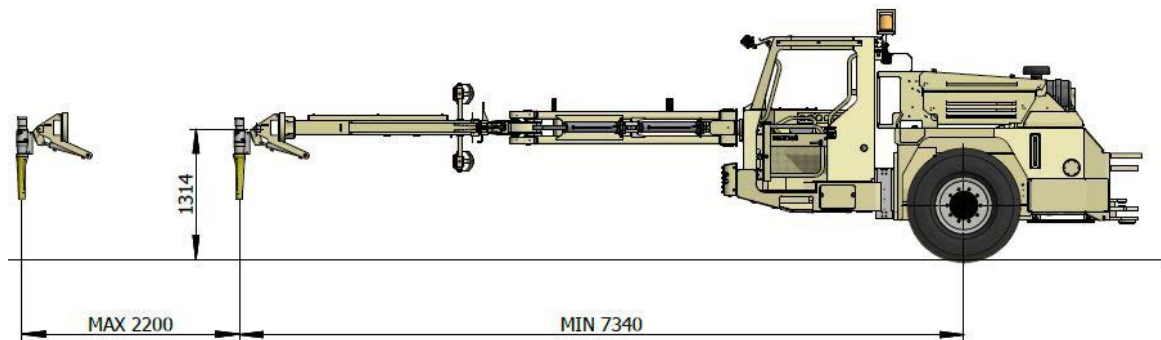
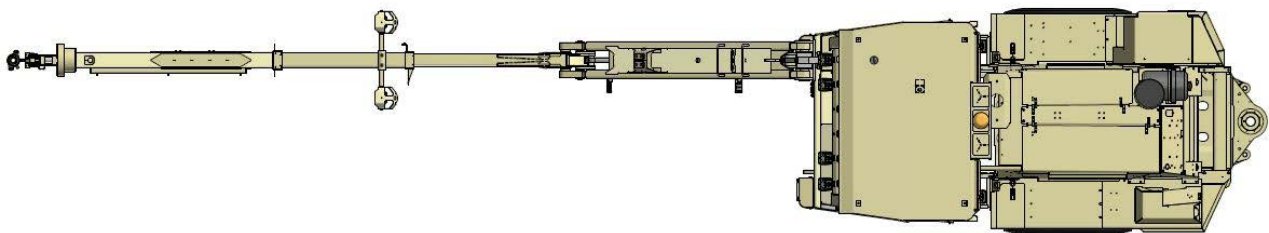
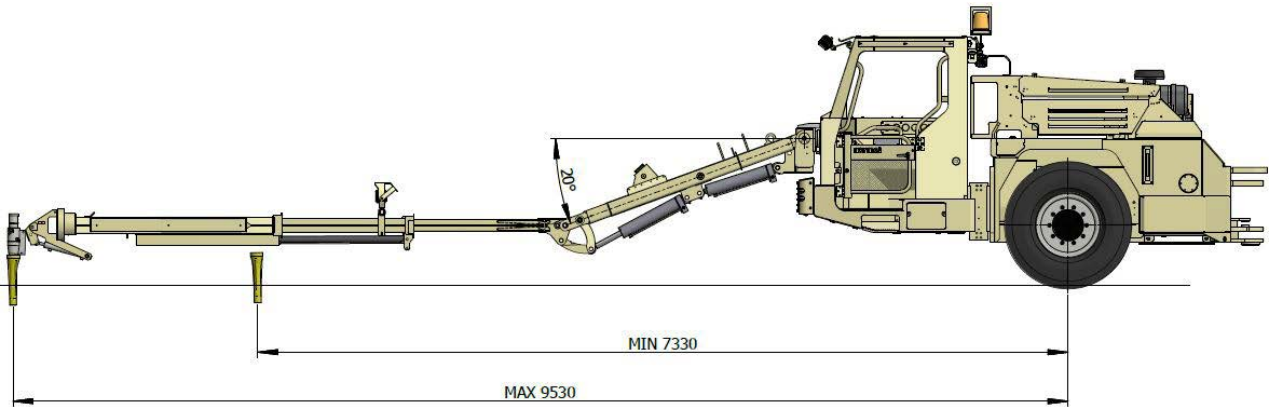
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**BOOM REACH**

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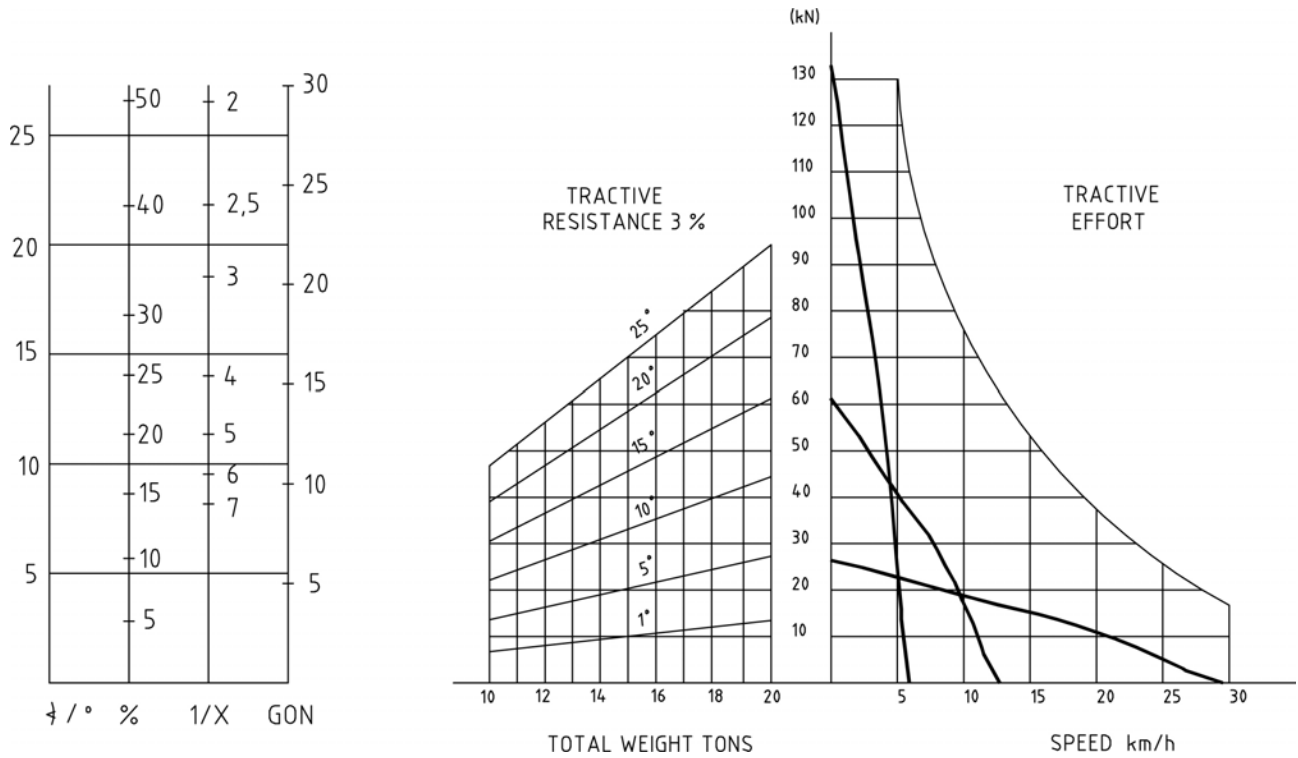




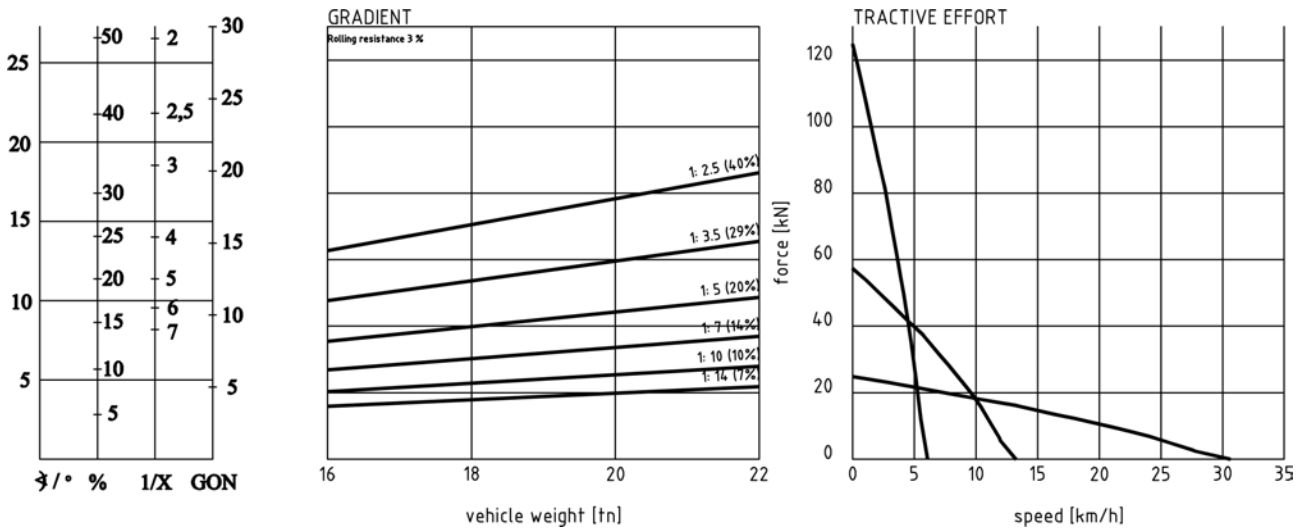
### BOOM REACH

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### Tractive efforts



DEUTZ TCD 2013 L4 120 kW  
Performance curve 100018584



MERCEDES-BENZ OM 904 LA 110 kW  
Performance curve 100006272