

Mecalac

VERSATILE RAIL/ROAD EXCAVATOR **714MWRR**



> Experience of your worksite

UNITING PRODUCTIVITY WITH MECALAC KNOW-HOW

Using all the advantages offered by the road model, upon which it is based, the 714 Rail/Road is also equipped with all safety features required when working on a railway system :

- Rigid frame with 2-wheel steering in road applications
- Independently controlled front and rear bogies with incorporated drive for travel on railway tracks
- Variable boom equipment with a jib controlled by two asymmetric actuators (patented system)
- Pre-selected modes to adapt machine operation to all your requirements

Extremely powerful engine for this tonnage.

**88 kW / 119 bhp
at 2,100 rpm**

**35 km/h
on road
22 km/h
on rail**

16 t

Spacious and comfortable cab.

Tail rotation within the rail width, i.e. R 1,565 mm.

Wide range of options and accessories.



AN EXCAVATOR FOR ALL RAILROAD WORKSITE APPLICATIONS

COMPACTNESS

With a tail radius of 1,565 mm, the 714 MWRR is able to work on a single track. Furthermore, thanks to its equipment kinematics it may be adapted to all site conditions, especially those with limited space available.

PERFORMANCE

Thanks to its kinematics, the equipment is efficient in all working positions. The lifting arm system with two asymmetric cylinders guarantees a homogenous lifting force both at low and high working heights. By railroad, travel speed is 22 km/h in both forward and reverse. The BUSCAN electronic system controls all vital components to optimise excavator operation and provide the operator with all data necessary for optimum machine use both on road or rail.



VERSATILITY= PROFITABILITY

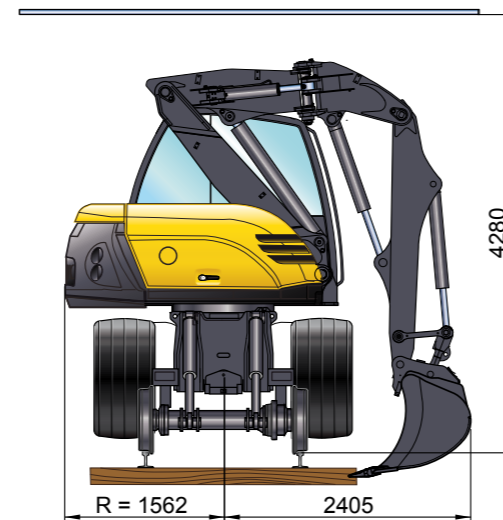
The 714 MWRR digs, loads, handles and may be equipped with a wide range of accessories. Using the standard quick-coupling system, the operator may switch from one accessory to another in seconds. The offset* feature considerably simplifies work as it allows both right and left bucket offset.

*optional

Compact boom geometry and a quick coupling system render the 714MWRR ideal for all applications on sites demanding an ever greater level of profitability.



As a professional working in a railway environment with limited space available, the 714MWRR meets all your needs with its remarkable compactness and performances.



Operation simplicity combined with a high level of safety and comfort increase the operator's efficiency and well-being during a long working day. Furthermore, the user-friendly controls and hydraulic functions render the 714 MWRR the ideal excavator or all applications.



VISIBILITY = SAFETY

The 714 MWRR offers a panoramic view over the entire work zone thanks to the spacious cabin and position of lifting arm cylinders. The overall turret compactness provides clear visibility behind the machine.

HYDRAULIC TECHNOLOGIES

ACTIVE CONTROL INSIDE :
LOAD SENSING : optimum equipment pressure suited to the effort requested,
FLOW SHARING : pump output shared among all controls, simultaneous movement
CYLINDER COUPLING : Simultaneous control of boom cylinders and tandem drive with a single joystick or control the equipment in 3 stages without using the pedal.

COMFORT

- A very spacious cab for a machine of this category: length 2m.
- A panoramic view over the entire working zone, in particular thanks to the position of the lifting arm cylinders.
- Numerous storage spaces adapted to today's needs.
- The seat and arm rests may be adjusted independently to adapt the seating to the morphology of the user.
- A totally fold-away windscreen: the bottom section folds over the top section which is then folded under the roof. Ceiling skylight with sunshade.
- Reduced noise in the cab thanks to improved noise insulation in the engine compartment.
- Stereo radio CD player.

■ **Double cab available as an option.**

EASY AND INTELLIGENT OPERATION

- Road functions identical to those of the 714MW.
- Rail functions incorporated into the monitoring display and control keypad.



LCD screen Road functions



LCD screen Rail functions

Switch the display from road to rail using the pull-down menu



Additional rail functions with keys F1 and F2

A HIGH SAFETY LEVEL FOR RAILROAD APPLICATION

The 714 MWRR meets SNCF approval criteria in France and is capable, after customization, of complying with regulations applicable in other EEC countries.



Equipment height limitation on track with overhead wires isolated or not:

- a two-position rod, connected to the boom cylinder, is used to select one of the two positions available.
- a label in the drivers cabin indicates the setting procedure.

Lift load limiter:

- the machine's electronic system monitors the load lifted, turret position, and boom angle with sensors and warns against or prevents movement with could have an effect on the load position and thus guarantees machine stability.



Angle sensor



Turret rotation limitation to avoid hindrance of adjacent tracks:

- rotation is limited to 180° left and right using a set of position sensors and a mechanical stop safety device (shaft). A staged speed control system slows the turret travel progressively to avoid excessive contact with the mechanical end stops.
- if the machine is equipped with an offset facility, its position is monitored with sensors to avoid hindrance of adjacent tracks.

Turret position sensor

ADVANTAGES OF THE RAILROAD SYSTEM

The 714MW_{RR} bogies are equipped with metal wheels with a diameter of 580mm which loading with raised wheels while still respecting railway regulations.

The 714 MWRR is equipped with two bogies functioning independently. They are fastened directly to the front and rear ends of the chassis and replace the stabilizer and blade systems of the 714MW road model.



EASY TO OPERATE

The machine is driven with the same pedals as those used for road travel. The bogies are driven with a single high-torque hydraulic motor incorporated into the rear axle (transmission between wheels with a solid drive shaft) and supplied by the translation circuit of the 714MW road machine via a splitter unit fitted to the hydrostatic motor. As soon as the system has detected correct positioning of the machine on the rail (bogies lowered and turret aligned), the translation supply is switched over automatically.

Option: second motor in the front axle provides improved adherence when changing the direction of travel



EFFICIENT AND AUTOMATIC BRAKING

Each bogie is equipped with a direct drum brake acting on both wheels of the same shaft. An automatic braking system when the accelerator pedal is released enables the machine to remain immobile during stoppage or work phases. Additional pressure on the brake pedal provides improved braking efficiency.



The minimum front and rear passage angle of 30° makes it easier to enter and leave the railway track or to pass over obstacles (embankments for example).

TECHNICAL FEATURES



WEIGHT

- Basic model 15,500 kg

ENGINE

- Intercooled turbocharged engine (compliant with standard TIER3)
 - Type DEUTZ TCD 2012 L04-2V
 - Diesel 4 in-line cylinders
 - Power 88 kW (119 BHP) at 2,100 rpm
 - Max. torque 495 N.m at 1,600 rpm
 - Cubic capacity 4,038 cm³
 - Cooling water
 - Air filterdry, cartridge
(with clogging indicator in the cabin)
 - Diesel consumption (depending on operating conditions) : 8 to 14 l/h
 - Exterior noise level: 101 dB(A)

ELECTRICAL CIRCUIT

- Batteries 2 x 12V / 110 Ah
- Voltage 24 V
- Alternator 28 V/55 A
- Starter motor 24 V/4 kW

CHASSIS

- Rigid:
- Road-turning radius:
 - 2-wheel steering 7,360 mm
- Rail:
 - rail/machine clearance height 150 mm
 - passage angle with bogies raised
Front and rear 30° min
- Independently controlled bogies



BOOM

- Composed of 3 parts: jib, jib end and arm.
- Jib control with a patented system composed of two asymmetric cylinders enabling a swing of 140°.
- Standard right and left off-set with a hydraulic cylinder. (optional on multipurpose equipment): 2.30 m/machine axis
- End bearings equipped with sealing rings and greasing via the rings.
- Jib cylinders with end of travel shock absorbers.
- Quick coupling system:
 - Take-up with automatic mechanical latching.
 - Unlatching controlled hydraulically.

Boom performance (machine equipped with a quick coupling):

	BOOM	
	Multipurpose	Excavator
•-Excavator		
Max. penetration force daN	5500	6200
Max. digging force daN	8400	8400
•-Loader		
Max. digging force daN	5200	

- Handling
 - For lifting and handling work, the excavator must be equipped with a safety valve.

	mm	dm ³	dm ³		kg
	500	260	215	3	286
	600	330	265	3	310
	850	530	385	4	386
	1000	630	455	4	422



TURRET

- Total rotation 360°
- Internal crown wheel drive mechanism
- Swivel with hydraulic motor with brake
- Rotation-speed 10 rpm
- Hydraulic motor 1260 cm³
- Max. pressure 260 bars
- Rotation-torque 3800 daN.m
- Shock absorber for progressive turret rotation, start and stop
- Tanks, capacity :
 - Hydraulic oil 140 l
 - Fuel 150 l

STEERING

- Type Orbitrol, cubic capacity 125 cm³

HYDRAULICS

- Attachment circuit
 - Variable capacity pump with electronic power control
 - Max. pressure 350 bar
 - Max.-flow-rate 205 l/min (95 cm³/tr)
- Attachments circuit (standard)
 - Flow rate 130 l/min
 - Pressure 180 bars
- REXROTH distributor Type LUDV
 - « Load Sensing Flow Sharing » proportionality of functions respected regardless of the load on each element.



CAB

- Monoblock fastened to 4 spring posts, noise-insulated, windscreen totally folded under the cabin ceiling, sliding swing door, sliding windows in door, ceiling skylight with sunscreen.
- Controls incorporated into the consoles on both sides of the seat and adjustable according to seat position.
- Seat on hydraulic suspension struts, lateral and height adjustment to suit the driver's build, seat belt.
- Electronic control panel with LCD display directly in the driver's line of view and comprising all safety and operation monitoring data, visual and audible alarms for road and rail functions.
- Water heating, high-speed blower, high anti-mist capacity, defrost via 5 air jets.
- Easy visibility and access to fuses and electrical components.
- Adjustable steering column with locking system in rail position.
- Stereo radio CD player.
- Optional air conditioning.
- FOPS approved with fan guard (optional).
- Double cab available as an option



TRANSMISSION

- Road and rail:
 - Open-circuit hydrostatic transmission.
 - Transmission pedal inverter (two directions).
- Road:
 - PowerShift gearbox with 2 speed ratios (road and site) in both directions.
 - 2 speed ranges for each of these ratios, high and low.
 - On-site: low speed: 3 km/h
 - high speed: 10 km/h
 - Road: low speed: 10 km/h
 - high speed: 35 km/h*
 - Max. traction force: 8,300 daN
 - Max. pressure: 340 bars
 - Pump flow-rate: 160 l/min
 - Engine: 107 cm³
 - * Depending on countries

Wheels and axles

- Full 4-wheel drive, equipped with:
 - Single tyres 18-19.5
Machine-width: 2,500 mm
 - Wide tyres 600 / 40-22.5 Machine-width: 2,505 mm
 - Twin tyres 10.00-20 Machine-width: 2,500 mm
- Front drive axle inclining +/- 8° to frame, inclination blockage.

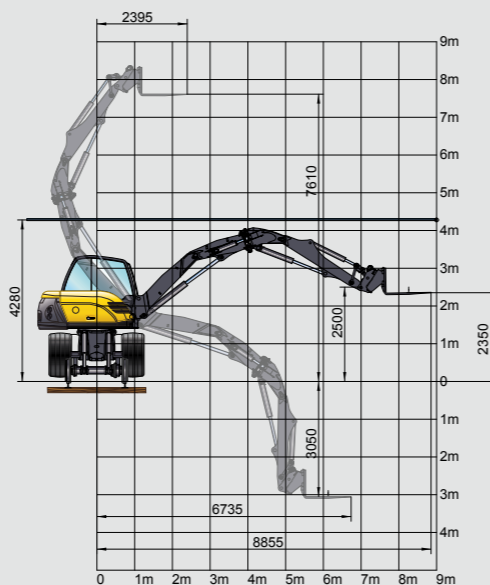
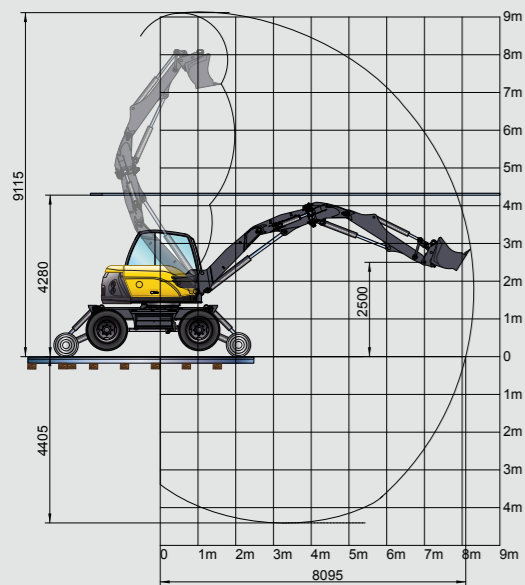
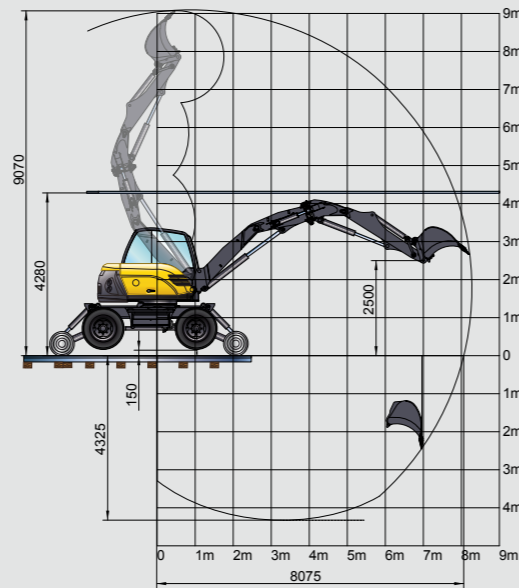
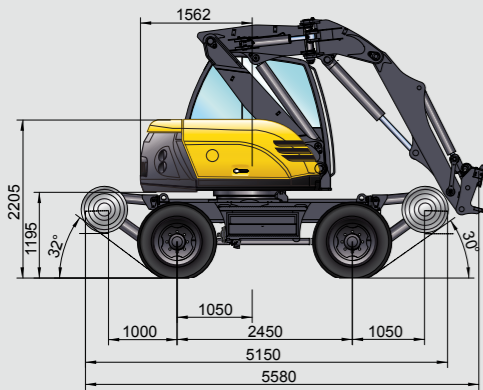
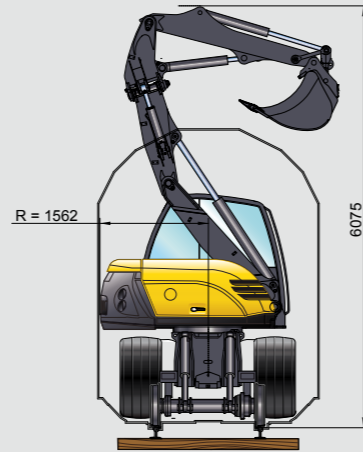
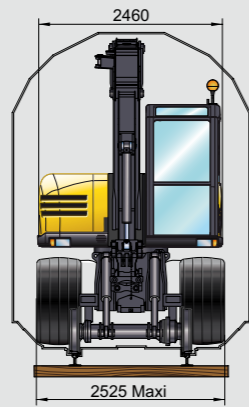
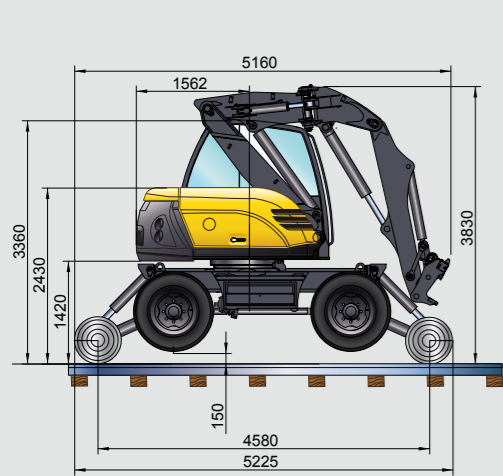
Rail

- Travel speed is 22 km/h in both forward and reverse.
- Gradeability 35 %
- Max. pressure 340 bar
- Flowrate 160 l/min
- Motor 730 cm³

Brakes

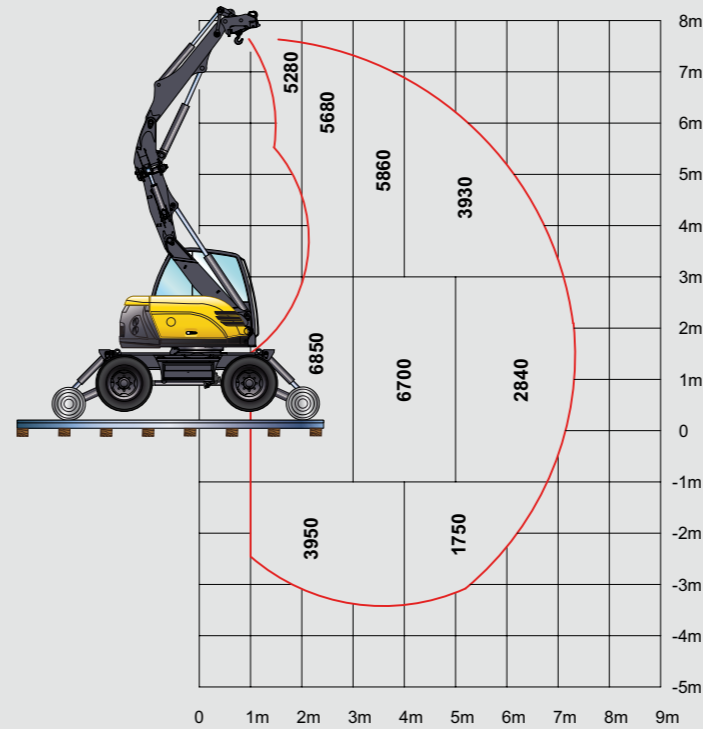
- Road
 - Double circuit central braking system.
 - Oil-immersed multi-disk brakes on each axle.
 - Dual-circuit braking system
- Rail
 - Drum brakes on both axles - Brake actions on all 4 metal rail wheel.
 - Automatic hydraulic piston braking system
 - Emergency braking system by loss of pressure

MULTIPURPOSE EQUIPMENT



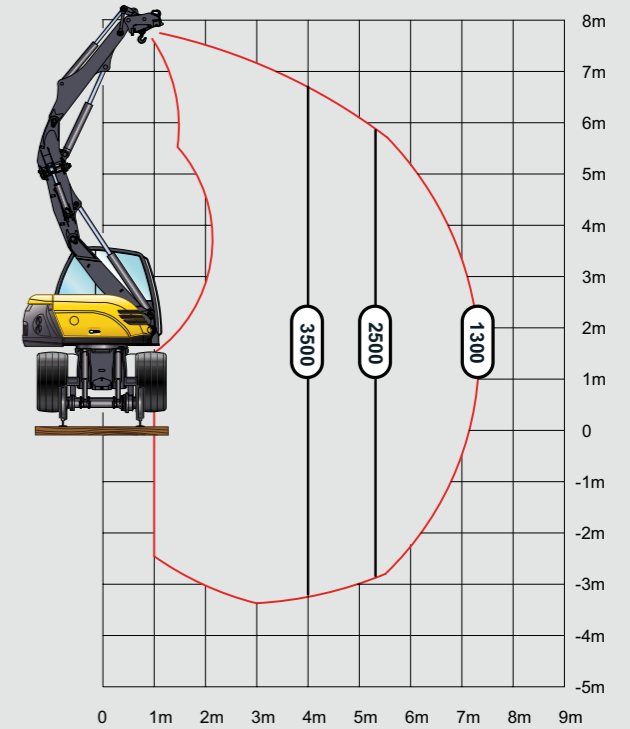
Hydraulic chart

Longitudinal section +/- 15°
Camber 0° to 2°



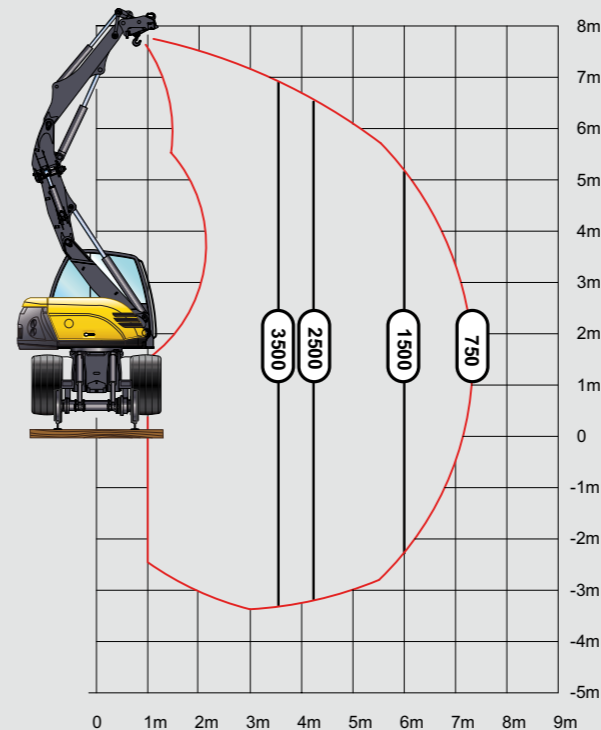
Max. chart

Longitudinal section +/- 35°
Camber 0° to 2°



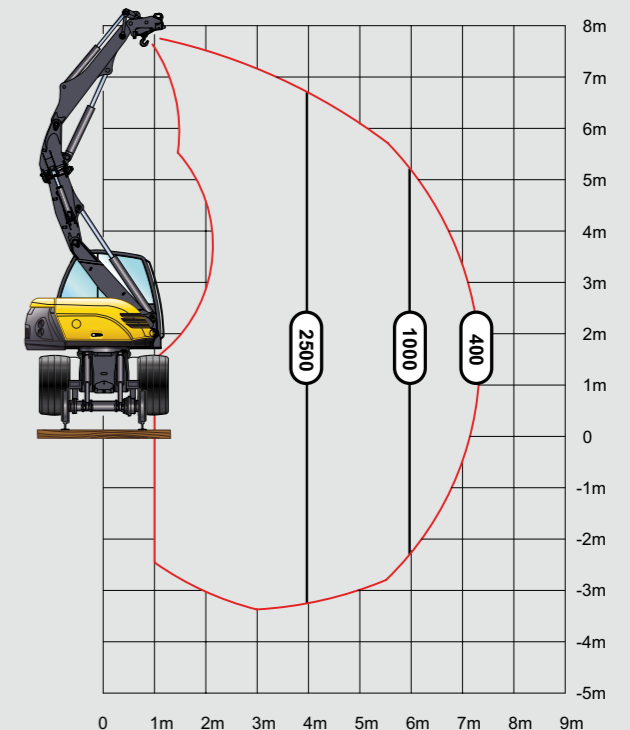
Average chart

Rotation 360°
Camber 0° to 2°

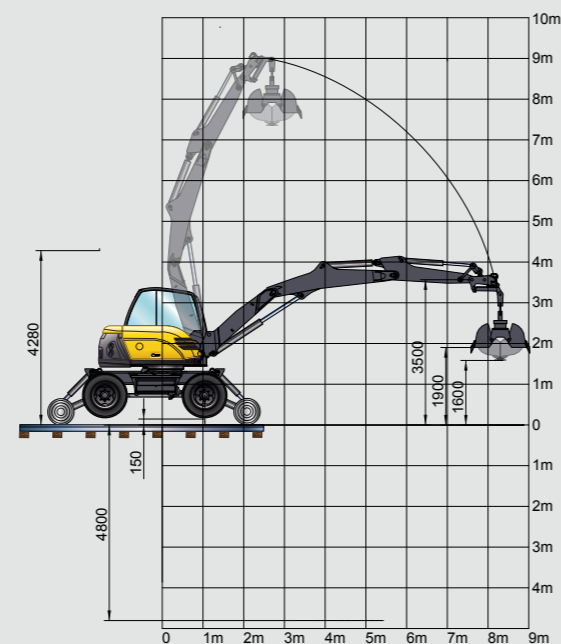
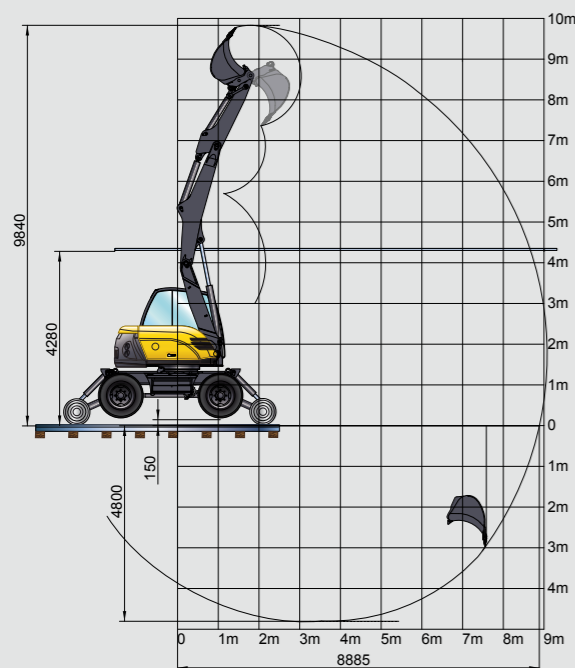
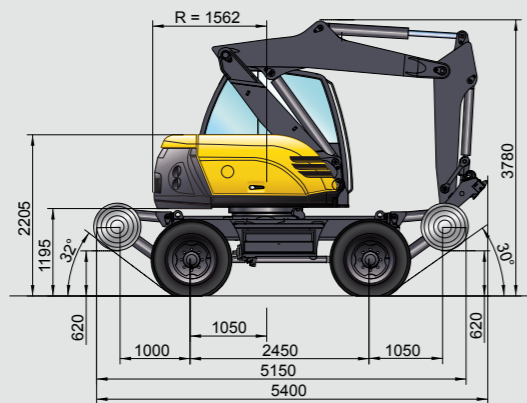
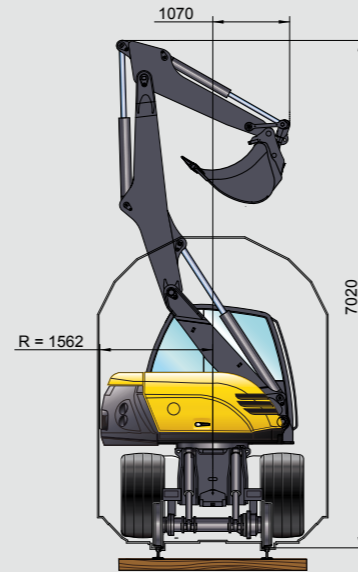
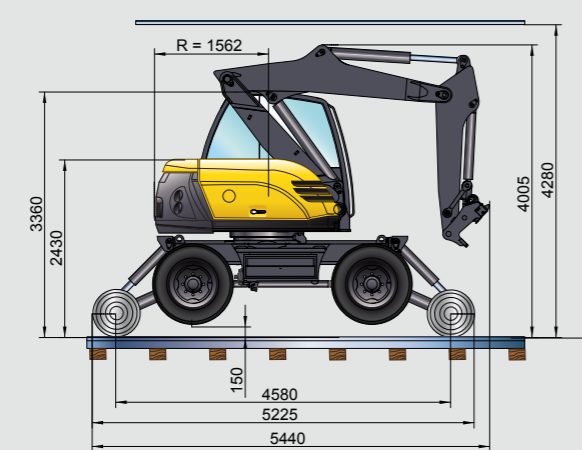
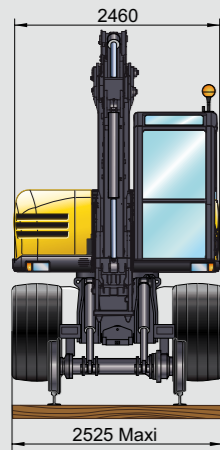


Min. chart

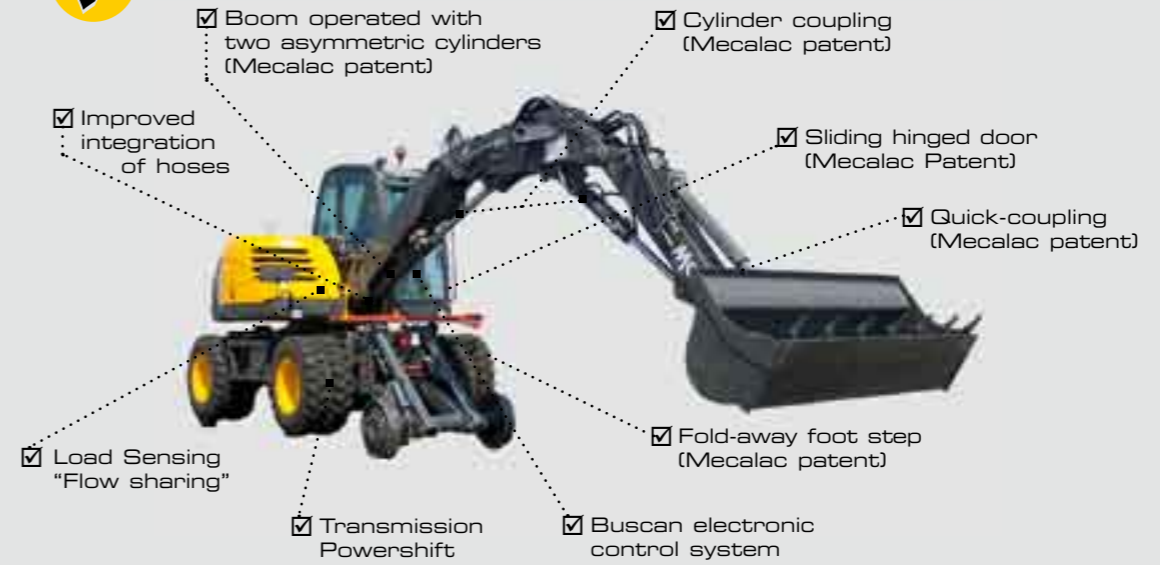
Rotation 360°
Camber 2° to 7°



EXCAVATOR EQUIPMENT



TECHNOLOGICAL CLOSE UP



BUSCAN ELECTRONIC CONTROL SYSTEM

This system provides a communication interface between the various machine elements (engine, hydraulics, controls). This offers the following advantages:

- Optimise performance

Electronic regulation system for the machine pump enabling optimisation of machine operation according to the engine parameters.

- Limit pollution and reduce noise

Electronic fuel injection control system to optimise the engine performance and reduce noise and fumes emission.

- Simplify driving

Pre-selected driving modes enabling:

- work at various power levels.
- fine-tuning of machine operation for precision work.
- work at all engine speeds.

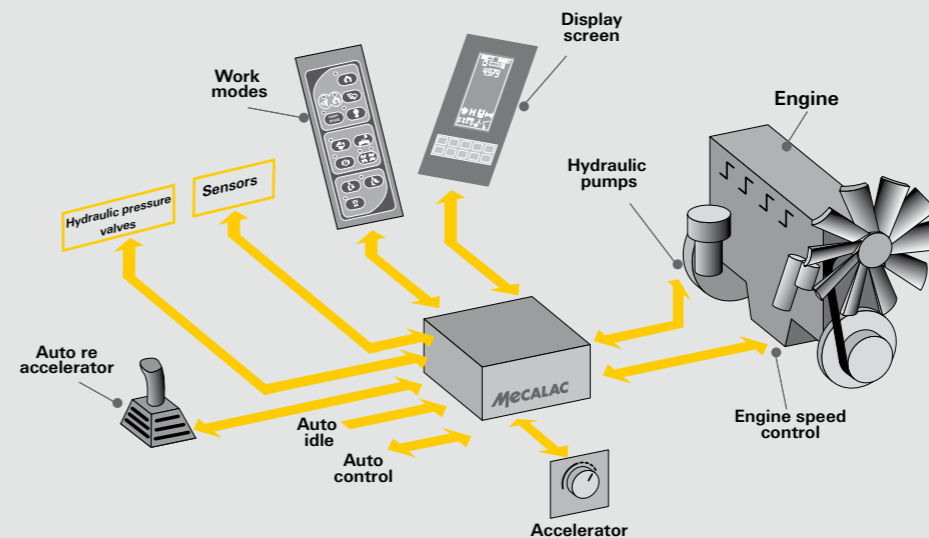
Automation: programmed trajectory (bank cutting,...).

- Fault detection

A fault code is displayed on the control monitor to facilitate fault finding.

- Easy maintenance

All «deviations» from the operating characteristics are memorized in the CPU. This record facilitates maintenance.



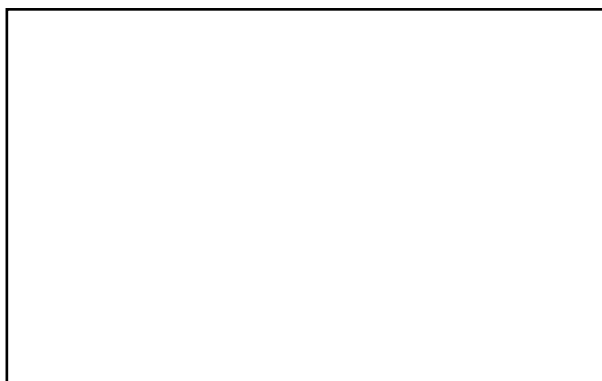


Our trade is the design, development, manufacture and commercialisation of innovative equipment for public road work adapted to a broad quality span to meet the requirements of a wide variety of customers.

The customer is at the heart of our company and we offer the benefit of our know-how with the team spirit which drives us forward.



Your local dealer



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