

# 12 MX / 12 MXT



**Mecalac**



# HIGH PERFORMANCE

## Powerful, easy to drive, the Mecalac 12 MX and 12 MXT leave other machines standing

- Profitability : a Mecalac provides four functions in a single machine: an excavator, a loader, a handler and a tool-holder, thanks to its exclusive snap action tool changing system.
- Simplicity : comfortable cab, adaptable to the driver's preferences, regardless of the function used.
- Compactness : another of Mecalac's strong points, 360° rotation in less than 3 metres thanks to its original kinematics.
- Ruggedness : a design which reflects the homogeneity and reliability of each component.
- Power : a choice of two engines, atmospheric or turbo-charged (77 and 93 hp).





# AND MULTI-PURPOSE

## Snap action tool change

Without leaving his seat, the driver can change the working tool in a matter of seconds thanks to the automatic, mechanical locking system.



## LOADER



Loads and backfills at 90°.



360° rotation for loading or unloading a lorry.



At ease and highly efficient even in the most confined sites.





## HANDLING

The Mecalac operates on any terrain, turning through 360° from - 3 metres to + 6 metres. Thanks to its compact design and original kinematics, it offers a high degree of flexibility.



## TOOL HOLDER

The Mecalac can be equipped instantaneously with a wide range of tools including rock hammer, brush cutter, sweeper, snow plough, etc.



# WITH SIMPLICITY

## Compactness.

360° rotation in less than 3 m diameter.

The Mecalac is 100% operational even in the tightest and most congested situations.

It is perfectly at ease in urban areas and also in tunnels and galleries.



## EXCAVATOR



Excavates in front and loads a lorry at the back.



Works on narrow roads or streets without hindering traffic.



Excavates in offset position to the left or right.



# THE BENEFITS

## Articulated chassis and oscillating rear axle

The chassis is articulated which means that minimum space is required when turning while keeping the tool or the bucket in the trajectory axis.

The oscillating rear axle offers exceptional all-terrain qualities, with a deflection of  $\pm 10^\circ$ ; oscillation can be locked from the cab regardless of the position of the Mecalac on the site. The two axles include oil-bath disc brakes and limited-slip differential.

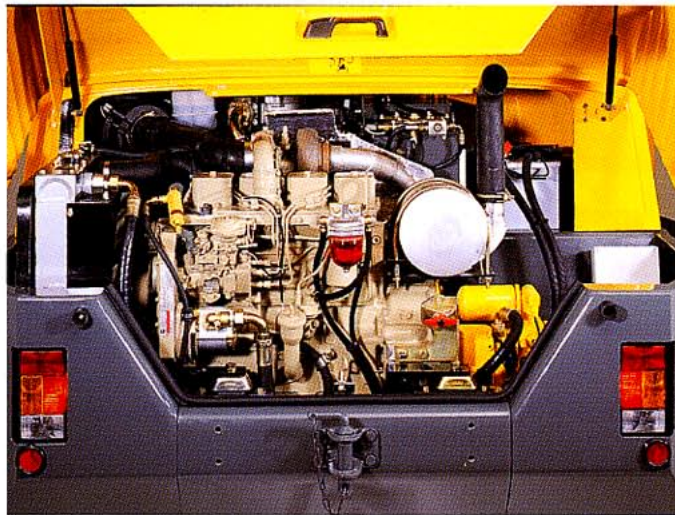


## 4-cylinder water-cooled engine

Two versions:  
77 hp atmospheric or 93hp turbocharged

In both cases, the engine is transverse-mounted for better stability and making access easier for periodic maintenance.

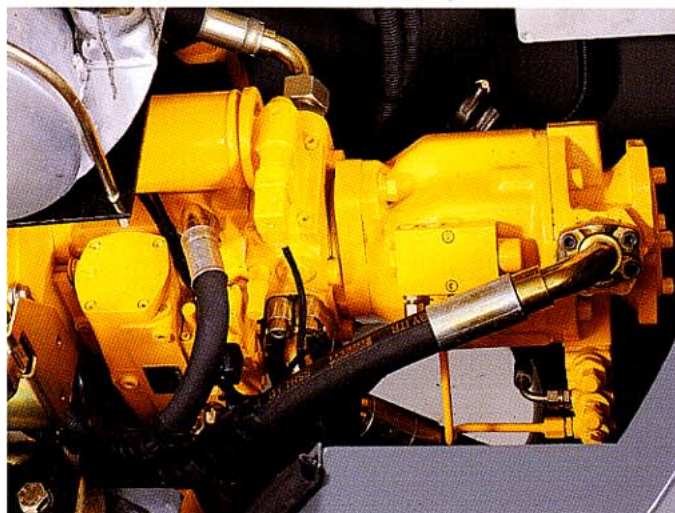
The engine is protected by two easily removable side cowlings.



## Variable flow pump with load sensing control system

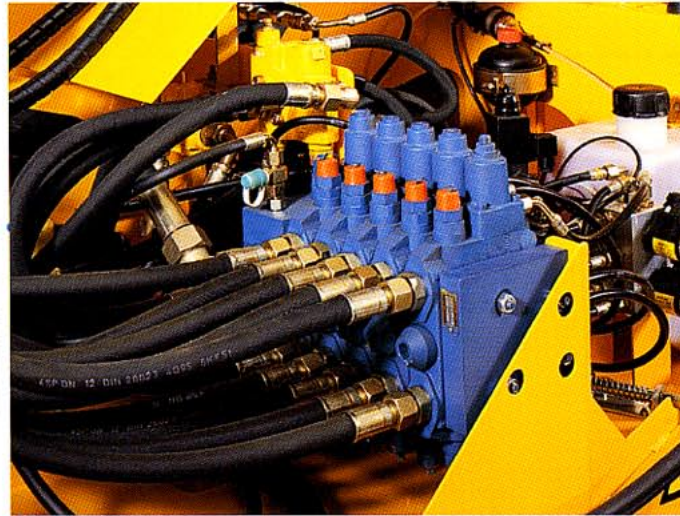
Performance is even higher while limiting the load on the diesel engine.

Fuel consumption is therefore reduced.



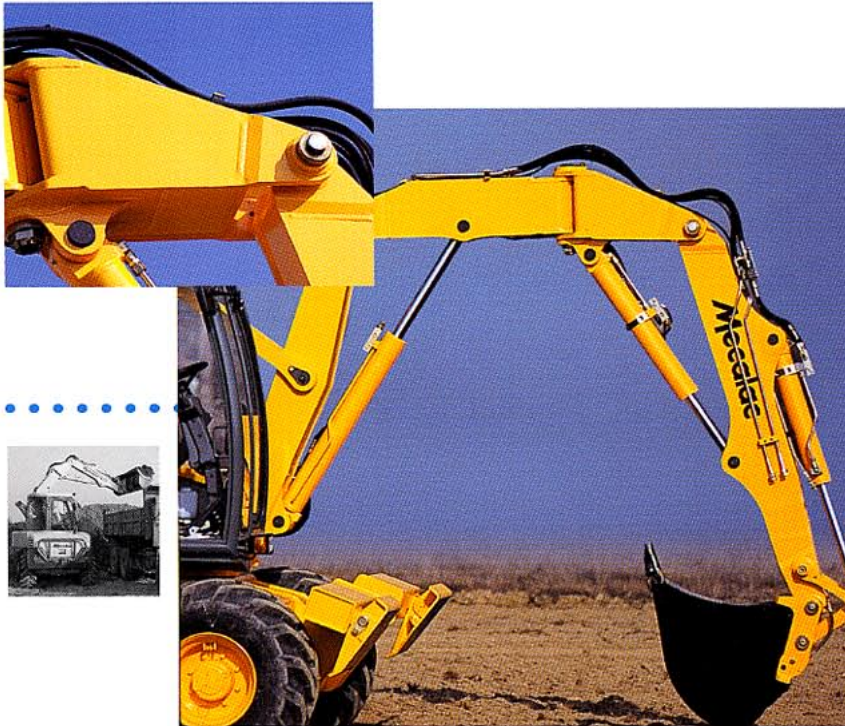


# OF HIGH PERFORMANCE



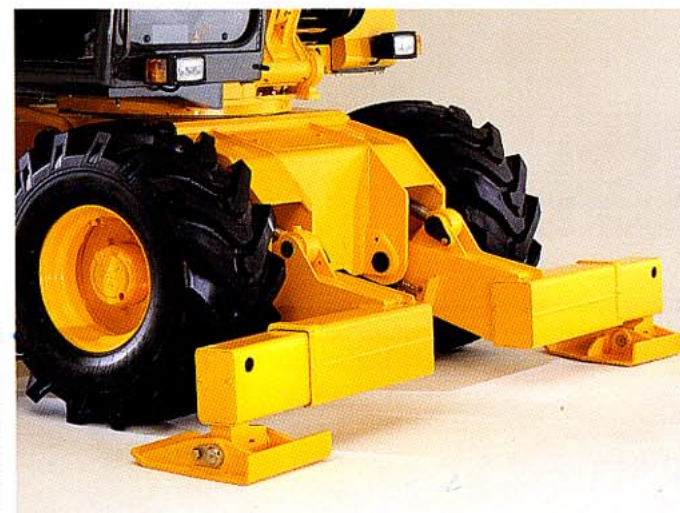
## **New generation distribution valve block**

Regardless of the cylinder movements, power to the rams is always proportional to the force required. The resulting operating comfort, accuracy and progressive control provided lead to considerably enhanced performance.



## **Three-piece kinematic arrangement**

The boom cylinder mounted on parallelogram, associated with the kinematics, means that rotation in a radius of 1.36 m can be achieved. The standard 33° left or right hydraulic offset system enables excavation, loading and/or levelling work to be carried out in tight situations.



## **Independent, one-piece or hydraulic telescopic\* stabilisers**

The stabilisers enhance stability. They can be controlled separately or together from the cab. The stabiliser pads are reversible right and left.



\* on option



# HIGH PERFORMANCE



## A highly comfortable cab with all round vision

The spacious cab with large paned windows guarantees all-round visibility. With the fold-away front windscreen, the sliding window on the right hand side and the opening rear window section, the driver can always be sure of excellent ventilation. The work station has been ergonomically designed to adapt to the driver: adjustable seat in all positions, adjustable steering column\*. Electric throttle lock, high performance heating and defrosting systems.

\* on option





# UNDER CONTROL



## Choice of operating mode\*

A simple selector switch is used to choose the operating mode suited to the function.

**Backhoe mode** makes the Mecalac 12 MX/MXT as simple to drive as a backhoe excavator with two-part kinematics. It automatically synchronises the equipment movements without any need for pedals.

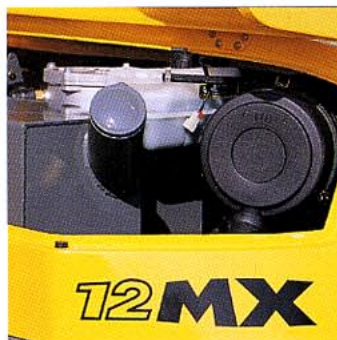
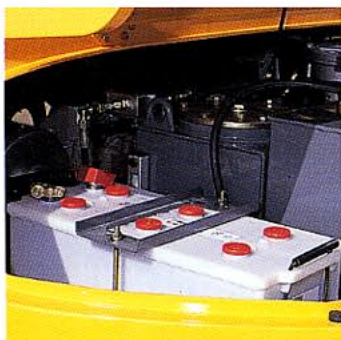
**Loader mode** is chosen to use the machine as a traditional loader. Left hand on the wheel, right hand on the servo-control which combines all the controls : forward-reverse, low or high speed, open-close bucket, raise-lower boom.

**With the Mecalac modes**, the operator has simultaneous or independent control of all the cylinders for specific work.



## An on-board monitor for -immediate information

Instantaneous and continuous display of engine revs, water and oil temperatures, diesel fuel level, oil pressure and state of filters, etc.



## Simplified maintainability

Easy access to all vital components facilitates the maintenance operations that are essential for guaranteeing maximum safety and optimum operation.





# HIGH PERFORMANCE

## EXCAVATOR



Flexibility and depth in excavation



A truly all-terrain machine



Creation of a 6 metre embankment down to the wheels without blocking the carriageway.



Stability guaranteed in all circumstances.

## LOADER



Backfilling at an angle of 90°: the driver faces the work area



Rehandling material above a trench



Offset loading



Working over an obstacle using a 4-in-1 bucket.



# IN ACTION

## TOOL HOLDER AND HANDLING



Hydraulic rock-breaking work



360° rotation and flexibility of kinematic frame.



Handling heavy liners, face on...



...and at 90°.



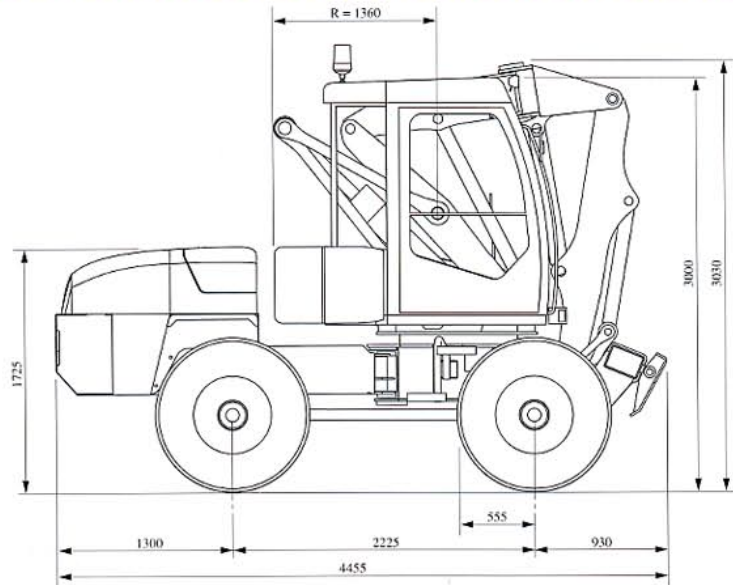
A multipurpose machine on workites ...



... of any type.



# SPECIFICATION



## WEIGHT

- Empty in working order without bucket or optional equipment
- Empty in working order with loader bucket

	MX	MXT
Empty in working order without bucket or optional equipment	8775	8825
Empty in working order with loader bucket	9075	9125

## ENGINE

- Atmospheric engine 12 MX
  - Type ..... Cummins - 4B3.9C-13
  - Diesel ..... 4 cylinders in line
  - Net power (DIN 70020 / ECE -R2403) ..... 54 kW at 2200 rpm
  - Max net torque (DIN 70020 / ECE -R2403) ..... 275 Nm at 1400-1500 rpm
  - Cylinder capacity ..... 3920 cm<sup>3</sup>
  - Cooling system : by cooling fluid
  - Air filter ..... dry, cartridge type
  - Fuel consumption (depending on conditions of use) . . 7 to 10 l/h

- Turbocharged engine 12 MXT
  - Type ..... Cummins - 4BT3.9C-20
  - Diesel ..... 4 cylinders in line
  - Net power (DIN 70020 / ECE -R2403) . . . . . 64 kW at 2200 tr/mn
  - Max net torque (DIN 70020 / ECE -R2403) ..... 346 Nm at 1300 rpm
  - Cylinder capacity ..... 3920 cm<sup>3</sup>
  - Cooling system : by cooling fluid.
  - Air filter ..... dry, cartridge type.
  - Fuel consumption (depending on conditions of use) . . 7 to 10 l/h

## CHASSIS-SECTION

- Articulated type
  - Turning circle ..... inside 2.65 m
  - ..... outside 4.91 m
- Chassis equipped with 2 independent front stabilisers, either fixed or telescopic\*.

### • Tanks

- Hydraulic oil, capacity ..... 82 l
- Diesel fuel, capacity ..... 120 l

\* On option.

## TRANSMISSION

- Closed-circuit hydrostatic transmission with "automotive" type automatic control.
- Electrically-controlled travel direction reversing system on steering column; can be actuated without stopping.
- Two speed ranges in both travel directions: "site" and "road".
- "Inching" or slow approach control allowing the machine speed to be reduced progressively until stopped with constant diesel engine revs : this function is controlled by a foot pedal which also combines as a braking function.
- Hydraulic travel motor and pump have variable capacity allowing continuous variation in transmission ratio over the entire speed range :

Max traction force  
Max pressure  
Max pump flow rate  
Motor

	MX 0 a 20km/h	MXT 0 a 26 km/h
Max traction force	5100 daN	5500 daN
Max pressure (AP) 480 bar	480 bar	430 bar
Max pump flow rate	120 l/mn	140 l/mn
Motor	80 cm <sup>3</sup>	140 cm <sup>3</sup>

### • Axles and wheels

- Four equal size drive wheels
  - As standard, equipped with 16 / 70.20 T 37 Barum tyres.
  - On option : equipped with 400 / 70.20 T 37 Dunlop tyres.
  - On option : equipped with 425 / 75 R 20 M 27 Michelin tyres.
  - On option : equipped with 18.19.5 T 35 Dunlop tyres.
- 1 fixed rigid drive axle on front chassis-section
- 1 oscillating drive axle on rear chassis section, ± 10°.
- Oscillation locking system by 2 hydraulic cylinders.
- On rear axle, single-ratio transfer gear box transferring movement directly to the rear axle and to the front axle via a transmission shaft. Limited-slip differential on both axles.

### • Brakes

- Multi-disc, oil bath main service brakes built into both axles.

- Multi-disc, oil bath parking brake built into the front axle.
- Multi-disc, oil bath emergency brake built into the front axle, actuated by pressure drop.
- Hydrostatic brake.

## TURNTABLE

- Total 360° rotation.
- Crown wheel drive with internal gear.
- Slewing by hydraulic motor with brake.
- Rotation speed ..... MX : 6,5 rpm
- ..... MXT : 8 rpm
- Hydraulic motor ..... 750 cm<sup>3</sup>/Max pressure 230 bars
- Fixed capacity gear pump :
  - Max pump flow rate ..... MX : 32l/mn
  - Max pump flow rate ..... MXT : 38 l/mn
- Patented HYDRO-SENSOR type, damped cross-over valve for movement start-up and progressive stopping of the rotation turntable.

## EQUIPMENT

- Made up of three parts : boom, boom extension and arm.
- Boom controlled by a patented system of rods and cylinders giving a deflection of 140°.
- Offset to the left or right by hydraulic cylinder. Patented system for maintaining all penetration forces regardless of the angular position of the offset block.
- Bearing blocks fitted with watertight seals.
- Boom cylinder with travel limit damper.
- Snap-action tool attachment system.
- Pick-up with automatic mechanical lock.
- Hydraulically controlled unlocking system.

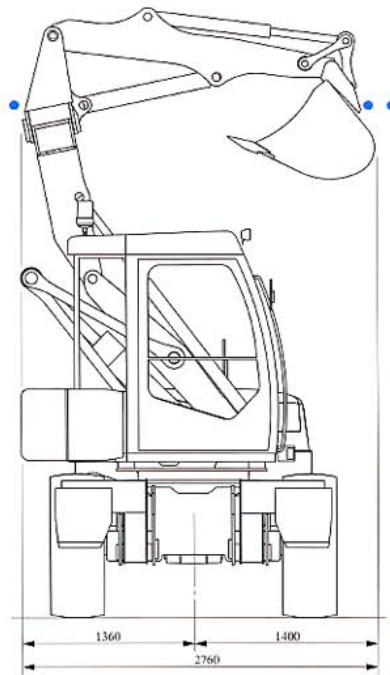
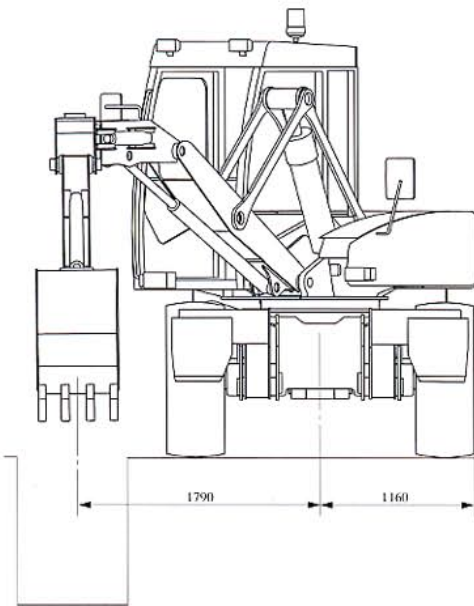
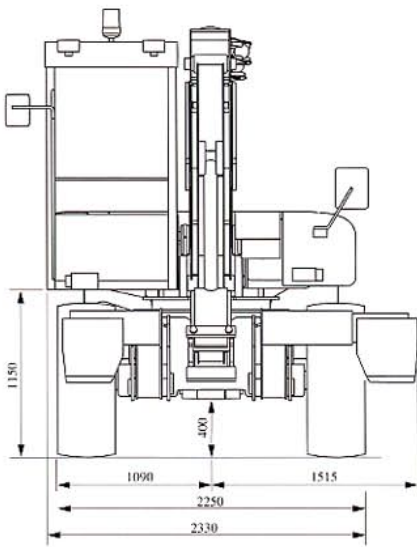
### • Equipment performance

#### Handling work

- For lifting and handling operations, the Mecacal must be fitted with safety valves.
- Backhoe
  - Max penetration force ..... 3100 daN
  - Max break-out force ..... 5600 daN
- Loader
  - Max break-out force ..... 4400 daN



# 12MX-12MXT



## STEERING

- Hydraulic: ORBITROL unit; priority valve, actuated by load sensing signal.
- Shock protection valves ..... 240 bars.

## HYDRAULIC CIRCUIT

### • Equipment circuit

- Variable capacity piston pump
  - Max pressure
  - Max pump flow rate
- |                               | (MX)               | (MXT)              |
|-------------------------------|--------------------|--------------------|
| Variable capacity piston pump | 45 cm <sup>3</sup> | 63 cm <sup>3</sup> |
| - Max pressure                | 280 bars           | 280 bars           |
| - Max pump flow rate          | 100 l/min          | 140 l/min          |
- SX18 type distribution valve block :
    - Proportional load sensing system with individual balance valve for each item: boom, boom extension, arm, bucket and auxiliary (optional) ...
    - proportionality of functions always respected regardless of the pressure level of each item.
    - Anti-cavitation overpressure valve on each item.
    - Hydraulically-assisted proportional control of

- various functions, by servo-controls or foot levers with low pressure supply and standby accumulator.
- Ancillary functions by solenoid valves:
  - Independently controlled left and right hand stabilisers
  - Safety lock to prevent consoles from being raised.

## ELECTRICAL CIRCUIT

- Voltage ..... 12 V
- Batteries ..... 175 A
- Alternator ..... 12 V 62 Ah
- Starter ..... 12 V 2.7 kW

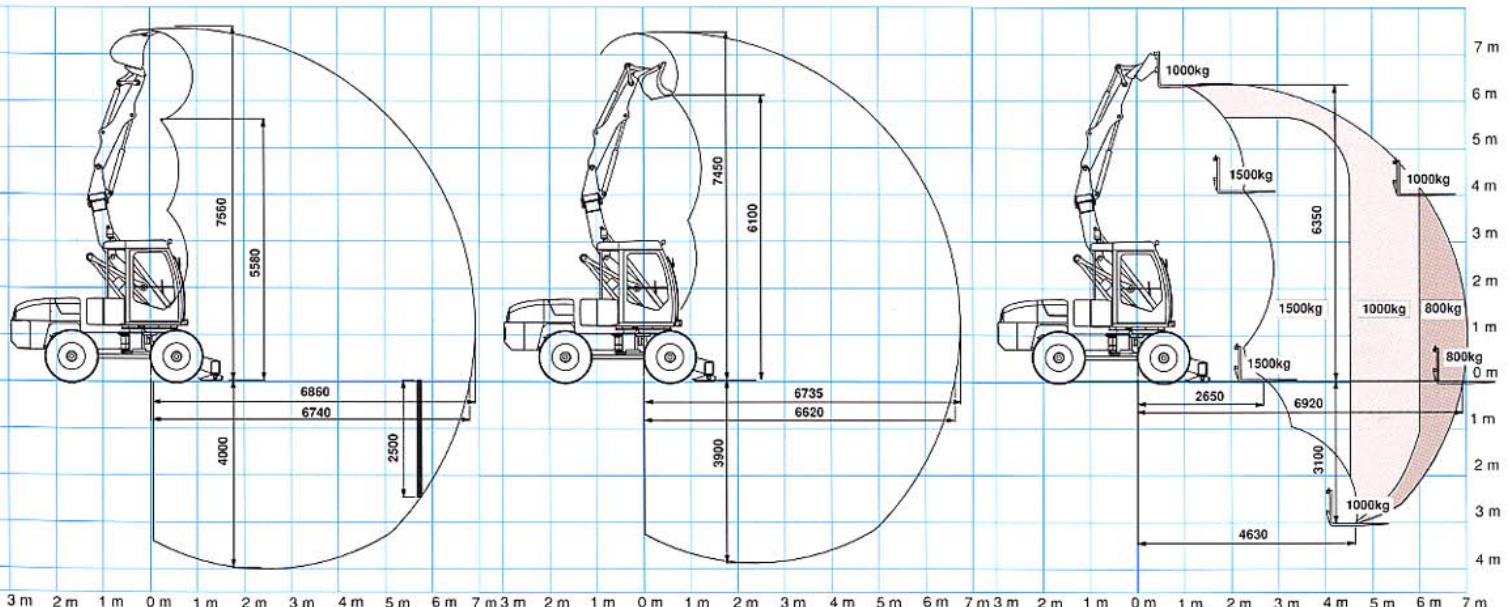
## CAB

- Certified ROPS and FOPS.
- Single shell fixed on 4 elastic blocks, wind-screen can be folded up under the roof of the cab, sliding door window, opening rear window.
- Servo-controls integrated in the consoles on either side of the driver's seat, and adjustable

with respect to the seat.

- Suspended, shock-absorbing seat, with height and longitudinal adjustment, equipped with seat belt.
- Electronic instrument panel combining all safety and monitoring information, visual displays and acoustic alarms.
- Heating and demisting by independent system with thermostat controlled temperature.
- Easy, visible access to fuses and electrical components.
- Patented driver assistance system (on option) with three possible modes:
  - MECALAC, for handling and precision work.
  - BACKHOE, for use as excavator, for earthworks and grading work.
  - LOADER, for rehandling and grading.
- Adjustable steering column (on option).
- Soundproofing in accordance with current standards.

The safe working load is limited by the pallet fork capacity at 1500 kg







## **A technology to suit your needs.**

Choosing Volvo Construction Equipment machines means having high quality and high productivity. It also means being assured of the reliability of machines built to take into account the needs of the operator as well as those of the environment. From each range you can choose the machine most suited to your needs, enabling you to improve the profitability of even the most difficult site in complete safety.

*Compact & Service Equipment offers a complete range of compact excavators, compact loaders and excavators/loaders.*

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