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INNOVATION AWARDS – MWR, NOMINATED DESIGN

Mecalac creates new architecture for wheeled excavators

Wheeled excavators are at the heart of Mecalac's business activity, and the company has established itself as a major player in this market through its fundamentally distinctive machine ranges. At Mecalac, we believe that industrial offers of vehicles for construction and public works need to have innovation at their core, which is why we constantly strive to find new, practical solutions for construction sites.

Using the solid strategy of observing its customers' work and construction sites, Mecalac has been able to identify an area for improvement for wheeled excavators: their stability. The very architecture of this type of vehicle, connected to an oscillating axle under the undercarriage and an upper carriage, gives it an intrinsically higher center of gravity. This results in a lack of stability which leads to discomfort and insecurity. On top of this, the inconvenient height of the cab means that the operator is forced to adopt unnatural, sometimes even hazardous, positions. In addition, the position of the diesel tank in the upper part is not ideal for using a filling system.

It is these three key issues of stability, accessibility and filling that Mecalac is tackling with its new wheeled excavator concept: the MWR range.

Solutions for the user

Lowering the center of gravity has proved to be the key. There is nothing more stable than a telescopic vehicle, as it must be inherently stable in order to carry out its main role: handling loads in motion. One of the techniques used to guarantee maximum safety is the installation of the cab as low as possible between the wheels. The design process therefore drifted naturally towards the distinctive architecture of this machine. The solution was found in the fusion of a telescopic loader and a wheeled excavator.

Rather than add new solutions to its existing wheeled excavator ranges, Mecalac's designers decided to create a new concept: a combination of the rotation of a wheeled excavator and the stability of a telescopic handling vehicle. All the components in the upper carriage have been lowered as much as possible, and the shapes of the upper carriage and undercarriage have been completely redesigned around the oscillation of the wheels. The goal was to fit the upper carriage as low as possible between the wheels whilst still retaining its full rotation, essential development criteria for improving the dynamic stability of the future Mecalac excavator. With the announcement of Mecalac's MWR range, a new standard of lifting stability and performance has been born.

One of the main design aims was to create an iconic vehicle whose functions are clearly manifested in a cohesive and balanced architecture. The continuity of the lines and the tension of the surfaces give the machine a unique dynamism which fully showcases its mobility and stability. The high level of attention to detail and the shrewd use of new components and technologies have enabled us to make significant progress in the domain of vehicles for construction and public works. This coveted stability can be clearly seen in the shape of the machine, where the rotating upper carriage is solidly integrated into the undercarriage. The continuity of the lines between the upper and lower parts showcases this integration by "anchoring" the machine to the ground.



A practical design

Diesel filling: Drivers fill the diesel tank on a daily basis. Thanks to a new swivel joint which is essential to maintaining full rotation, the tank, traditionally positioned on the upper carriage, has been integrated into the lower undercarriage, between the wheels. At shoulder-height, using the filling system is simple, quick and safe. Without a diesel pump, this is a unique advantage from Mecalac.

As well as this daily task, there are many different maintenance operations that the driver must carry out to guarantee the machine's performance and longevity. The mechanisms in question, such as the engine and hydraulic pumps, which have been lowered as much as possible in line with the new architecture, are now accessible from the ground without the operator having to climb into the machine and putting himself or the technician at risk. Operations can now be carried out efficiently and easily.

Cab accessibility: The height drivers must climb to access the driver's compartment in the MWR machines has been reduced. The two handrails, left and right, can be gripped without drivers needing to twist their arms or wrists. Climbing down has also been designed ergonomically, as the feet fall naturally into position on the steps, with no risk of slipping. All problems linked to driver's compartment access, such as falls, fractures, and muscle problems, are significantly reduced by this new architecture designed specifically to ensure the comfort and safety of users.

Dynamic stability: The shape of the machine itself is a clear display of its stability, as its upper carriage is fully inserted in the undercarriage. This lowered center of gravity helps to naturally anchor the machine towards the ground. Horizontal travel, including load handling, showcases the perfect balance of this new Mecalac wheeled excavator. The user interface has also been completely redesigned. With just one selector on the dashboard, the operator has the simple choice between one of three functions: park, work, or drive. The entire machine, complete with its oscillating axle, engine speed control and lights, adapts automatically to the selected sequence. Man and machine maneuver in perfect safety, day-to-day tasks are handled easily, and site performance and productivity are guaranteed.

A solid design strategy

Mecalac excavators operate in urban and peri-urban environments, and their modern architecture blends in with their surroundings. Their innovative and distinctive design contributes to the visual identity of the brand.

Beyond the challenge, producing architectural excellence directly through innovation is an integral part of Mecalac's DNA. The new Mecalac wheeled excavator has not only become a practical, efficient and profitable work tool, but stands out from the competition thanks to its design which fits seamlessly into the urban environment.

At the Mecalac Group, design is a thread which runs through all departments. At the crossroads of R&D and marketing, our internal design team combines art, technical and company concepts to create practical machines for operators and their environments.

"Design is a key element in the identity of this Mecalac product. It is not just a matter of aesthetics but also of functionality, safety, and ergonomics. It is common knowledge that buying a machine has as much to do with its appearance and cab comfort as its performance. Beauty sells..."

Henri Marchetta

CEO

MECALAC GROUP S.A.