



FEEDING ROBOTS

NEXUS

6 m³

| Robust Volt

To mark seventy years of leadership in the mixer sector, RMH has launched the NEXUS, a state-of-the-art, autonomous electric feeding robot. Unlike traditional systems, the NEXUS is an all-in-one solution designed to perform the entire feeding cycle—loading, weighing, mixing, and distribution—completely autonomously.

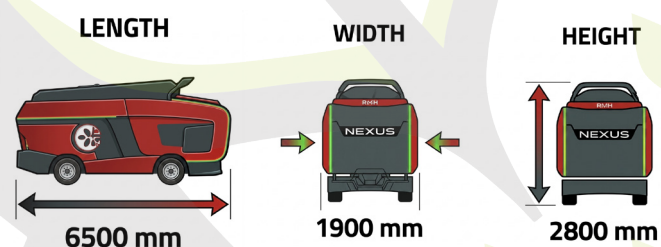
New generation of feeding robots



The NEXUS design philosophy centers on full autonomy and maximum energy efficiency. By eliminating the need for fixed ration preparation facilities ("feed kitchens"), the NEXUS offers a zero-emission, quiet, and highly autonomous alternative. The system is engineered to meet the rigorous demands of cattle, sheep, and goat farming while prioritizing animal welfare, farmer comfort, and long-term economic viability.

Physical and Mechanical Specifications.

The NEXUS is built on a heavy-duty chassis designed for continuous operation across diverse farm terrains. Its mechanical architecture prioritizes manoeuvrability and durability.



Dimensions

Its compact size, combined with four-wheel drive and four-wheel steering, ensures excellent maneuverability in tight spaces.

Electrically Powered

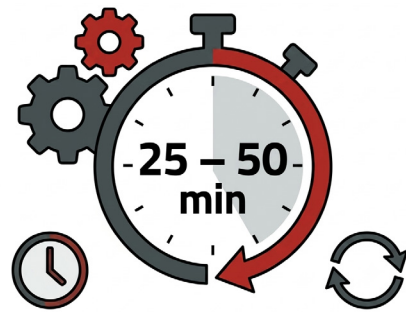
The NEXUS is distinguished by its 100% electric energy source, which allows it to reduce farmers' operating costs.





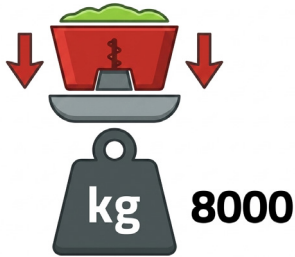
Bin

The 6 m³ mixing bin with two overlapping vertical augers ensures rapid and homogeneous mixing.



Cycle

The cycle time varies between 25 and 50 minutes, depending on the number of ingredients and the distance between the buildings.



Loaded Weight

Thanks to its high-capacity volume, the cycle time allows for the dispensing of a larger ration volume.



Empty Weight

Optimization of the chassis and bin design (using steel and specific materials) to optimize the power-to-weight ratio.

Chassis and Drive System Architecture

 **Four-Wheel Drive and Steering:** To achieve high manoeuvrability in confined spaces, the system utilizes four-wheel steering, including independent axle steering and crab steering modes.

 **Electric Traction Motors:** The robot features four independent electric traction motors integrated directly into the wheels. This eliminates complex hydraulic lines, improving overall system efficiency and reducing potential leak points.

 **Transmission and Braking:** Each motor is paired with dedicated reduction gears to optimize torque for varying load conditions. Safety is ensured via integrated negative brakes on each motor.

 **Material:** The chassis and bin are optimized for a high power-to-weight ratio. The bin base is constructed from a thick, perforated steel plate reinforced with stainless steel, while walls utilize 3CR12 stainless steel for superior wear and corrosion resistance.

Power System and Patented "Swapping" Technology

The NEXUS utilizes a 100% electric 96-volt power architecture. From an engineering standpoint, the choice of a 96V system is critical; it allows the robot to operate at high efficiency while remaining below the voltage thresholds that require specialized high-voltage "authorization certificates" for farm personnel.

 **Battery Pack Specifications:** The system features a 48 kWh capacity pack with an estimated lifespan of 5,000 cycles (approximately 6+ years). The assembly includes an integrated Battery Management System (BMS) and a dedicated module cooling circuit to maintain optimal thermal conditions during heavy work cycles.

 **Operational Cycle:** The robot provides 2.5 to 3 hours of continuous operation per pack, with a 3-hour recharge time.

 **Patented "Swapping" System:** To achieve 24/7 operational readiness without the weight penalty of a massive single battery, RMH developed an automatic battery pack replacement system.

 **The Process:** The robot identifies its low-charge status and navigates to the station, where the depleted pack is automatically replaced with a fresh one in 3–4 minutes.

 **Auxiliary Power:** A small auxiliary battery remains on the robot to maintain communication with the charger and navigation systems during the physical handover of the main pack.

Advanced Navigation and Safety Architecture

The NEXUS employs a redundant navigation suite to ensure sub-centimeter precision, both outdoors and indoor environments.

 **Dual-Path Navigation:** External movement is governed by Real-Time Kinematic (RTK) satellite positioning. For indoor operations where GPS signals are obstructed, the robot switches to SLAM (Simultaneous Localization and Mapping) technology to navigate without floor-mounted guides or rails.

 **Safety Compliance (NF ISO 3991):** The robot is equipped with multiple LiDAR sensors providing a 10-meter detection radius.

Static Obstacles: If an object is detected, the robot calculates an optimized trajectory deviation to bypass it.

Moving Obstacles: If a person or animal is detected in the path, the robot is programmed to stop and wait for the path to clear before resuming.

 **Environmental Interaction:** The system can autonomously command farm infrastructure, including the activation of automatic doors, feed auger motors, and liquid pumps for water or additives.

Feed Management: Loading, Mixing, and Distribution

The feeding systems are a refined evolution of RMH's proven twin-auger technology, optimized for autonomous power constraints.

 **Loading and Sensing:** The rear-mounted loading chopper features "loading arm rotation" system. By allowing the arm to pivot laterally, the chopper width is kept narrow (reducing traction power demand), yet the robot can still clean silo walls effectively.

 **A critical Dry Matter (DM) sensor** is integrated into the chopper to monitor ingredient moisture in real-time, ensuring the ration remains nutritionally accurate.

 **Precision Mixing:** The 6 m³ bin uses two overlapping vertical augers. To ensure the highest ration quality, the mixing speed, duration, and the position/timing of the counter-knives are continuously adjustable via upstream software settings for every individual ingredient. Loading accuracy is maintained by a 3-point weighing system.

 **Distribution:** A front-mounted transverse conveyor belt allows for distribution to either the left or right side. Its positioning allows the robot to deliver feed to the absolute end of dead-end alleys, maximizing building utility.

Feature Advantage: **Smart Side Loading Arm**

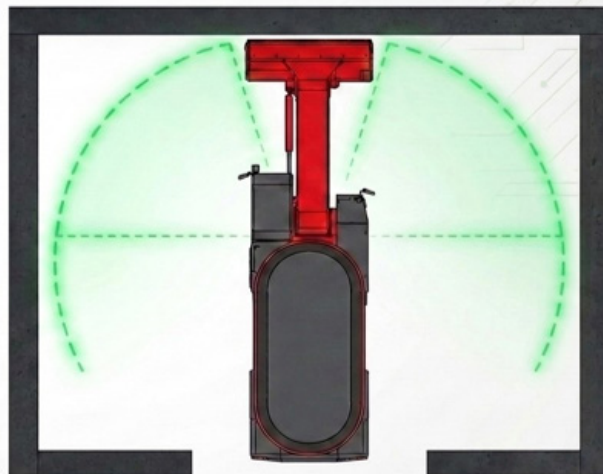


Brilliant engineering for energy savings and maneuvering in tight spaces.

Reduced chopper head width for massive savings in electricity consumption.

Unique Feature allows the arm to pivot right and left to reach every corner of the silage wall, without the entire vehicle having to hug the wall.

Maximum safety: Milling from behind, discharging from the front.



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Operational and Economic Benefits

Transitioning from traditional diesel-hydraulic mixing to the NEXUS platform offers three tiers of benefits

 **User Comfort and Labor:** The system addresses chronic labor shortages by automating repetitive feeding tasks. A dedicated application allows the manager to monitor distribution progress and modify rations remotely, eliminating driving time and physical labor.

 **Animal Welfare:** Fresh, homogeneous rations are delivered multiple times per day. The silent electric drive reduces ambient noise stress, while the zero-emission operation improves air quality within the barn, directly correlating to improved milk or meat production.

 **Economic Efficiency:** The robot eliminates diesel costs and significantly reduces maintenance, as electric motors have fewer moving parts and no emissions-scrubbing hardware. Furthermore, charging cycles can be scheduled to coincide with on-farm renewable energy production (e.g., solar PV), optimizing self-consumption.

 **Integrated "Pusher" System:** The NEXUS features a built-in feed pusher. By maintaining feed proximity as it distributes, the NEXUS eliminates the need of using one more pusher machine in the farm

Operational Throughput and Economic Performance

The NEXUS provides a scalable solution for varying herd sizes:

Per Cycle Capacity: 50 Milking cows.

Cycle time - 25-50 minutes – (dependent on ingredients/distance)

Working time before charging - 2.5 hours

Possible to feed between charging– 75 milking cows – 125 milking cows including feeding rest of the herd

Duration per Charge: 2.5 hours continuous .

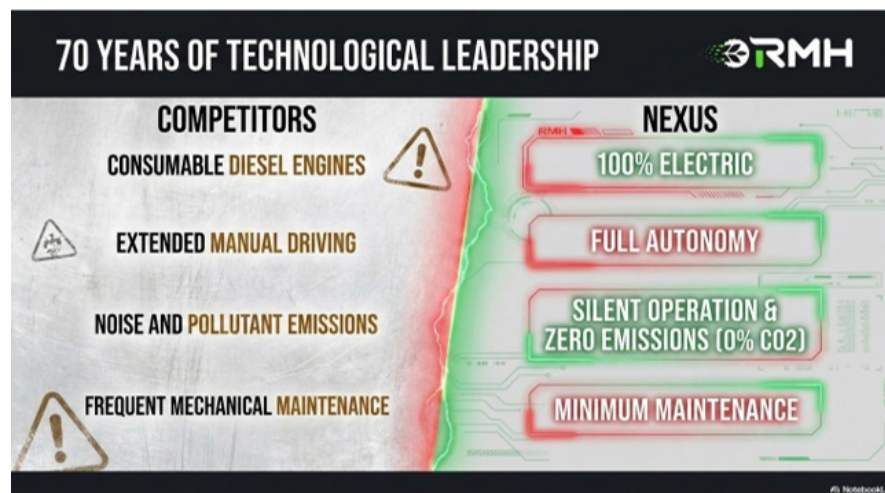
Daily Capacity (Standard) – assuming 20 hours a day : 300–500 cows.

Daily Capacity (With Swapping System): 600–800 cows.

Comparative Analysis: NEXUS vs. Market Alternatives

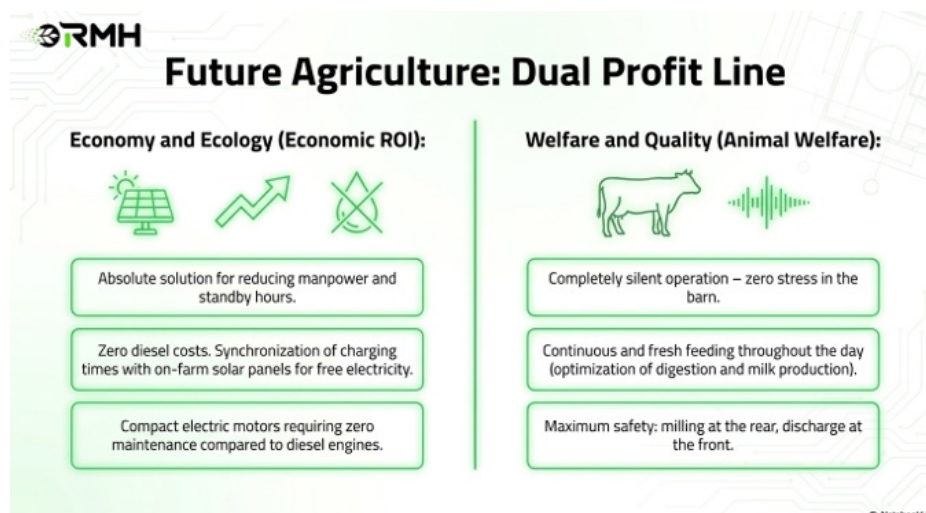
VS. Stationary Feed Kitchens

Traditional robotic systems require a "feed kitchen"—a high-cost infrastructure investment including stationary mixers and conveyors. These setups often require expensive upgrades to the farm's electrical contract to handle high-wattage stationary motors. The NEXUS requires no such infrastructure; its mobile, all-in-one design operates on existing energy contracts and fits into current buildings without modification.



VS. Diesel Competitors

While competitors rely on internal combustion, the NEXUS is 100% electric. From an engineering reliability standpoint, electric motors offer a significantly longer lifespan than diesel engines due to their simplicity and lack of complex exhaust/cooling systems. Furthermore, the NEXUS offers a 6 m3 bin, this allows it to move twice the volume per cycle, reducing total travel distance and daily energy consumption for the same herd size. The RMH NEXUS stands as a zero-emission, silent, and sustainable solution, offering the modern livestock operation a scalable path toward nutritional precision and labor independence.



Strategic Vision and Future Expansion

Transitioning from traditional diesel-hydraulic mixing to the NEXUS platform offers three tiers of benefits

RMH is committed to ensuring long-term technical support for the autonomous transition. To support the expanding NEXUS and the new technology, RMH has scheduled a 2027 expansion in France, which will include a new facility dedicated to spare parts inventory and specialized technical service.

Technical Conclusion

Transitioning from traditional diesel-hydraulic mixing to the NEXUS platform offers three tiers of benefits

The NEXUS autonomous electric feeding robot represents the peak of agricultural robotics integration. By combining patented battery-swapping technology with advanced SLAM navigation and a high-durability electric drivetrain, RMH has solved the primary limitations of traditional feeding systems. The NEXUS provides a scalable, energy-efficient tool that optimizes nutritional precision while drastically reducing the carbon footprint and labor requirements of modern livestock operations.

WEIGHT & DIMENSIONS:
Length 6.5m, Width 1.9m,
Height 2.8m.
Empty Weight 5,800 kg.

DUAL DRIVE:
4 electrically driven
wheels, double steering,
and "crab walk".

SMART CONTROL: Full
management via dedicated
app – change timing and
quantities in real-time.

ALL-IN-ONE TOOL:
Loading, weighing, mixing,
and distributing – entirely
hands-free.



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Engineered for Performance, Backed by Service. Contact us for a personalized demo and experience the RMH difference!