

ATOMIZZATORE POWER MULTIROW 2020

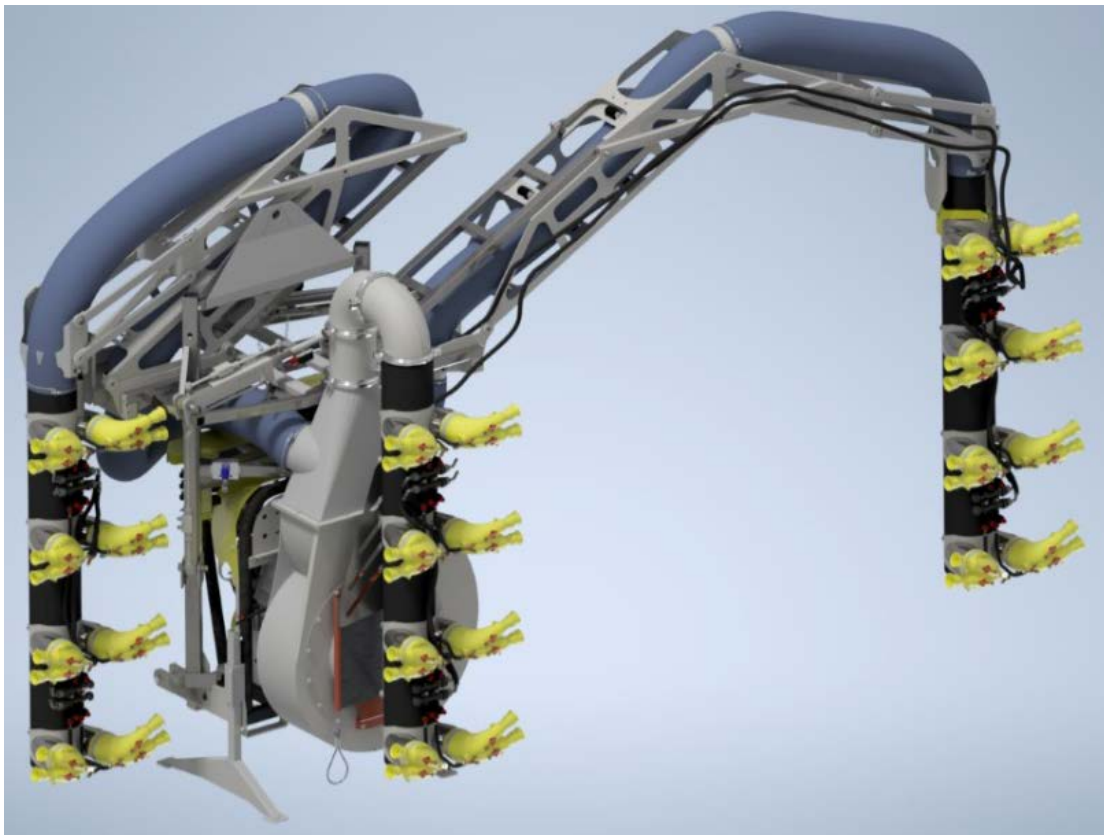
The VMA of S. Maria della Versa (PV), already leader in the market of pneumatic sprayers, is proud to present its most recent creation, namely the POWER MULTIROW 2020, an articulated sprayer that introduces an important series of technical innovations, to increase the versatility of use of the machine and make the phytosanitary treatment even more effective and more environmentally friendly.

The innovations

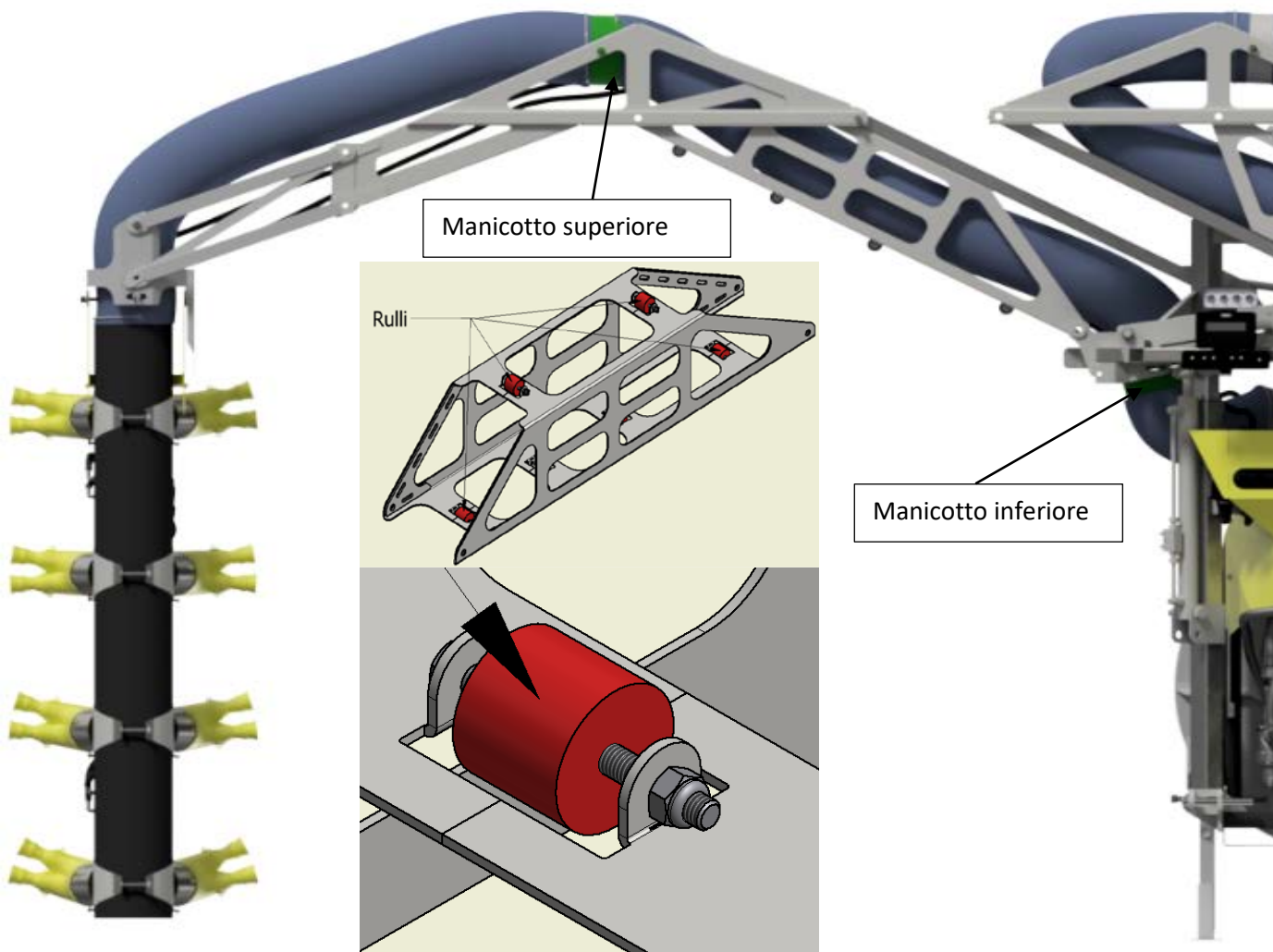
The innovative POWER MULTIROW 2020 atomizer offers the typical advantages of the pneumatic spray models of the mixture (also known as "low volume"), that offers excellent vegetation coverage (using reduced quantities of water) and at the same time a remarkable capacity to penetrate into vegetated foliage of high density and thickness. At the same time, however, it also allows to limit the drift effect, i.e. the dispersion of the droplets sprayed over the treated vegetation.

The main objectives of the VMA designers have been the optimization of the distribution (with particular attention to the versatility of use), the reduction of the drift and the maximum simplicity and speed in the configuration of the machine, in order to be able to perform both low or medium volume treatments, which high volume ferti-irrigations.

The machine has 3 columns, each equipped with 16 air outlet nozzles (8 for each row wall) with individual control for interrupting the flow), for precise and targeted treatments with a reduced air volume, minimizing thus drift. The individual columns are obviously adjustable, to adapt to the easier transit in inter-row lines between 2 and 3 m wide



A patented facilitating device has also been added to the tested mechanism for the hydraulic movement of the extendable arms, consisting of hinged metal sleeves and rollers that facilitate the sliding of the pipes, in order to speed up the opening and closing of the columns

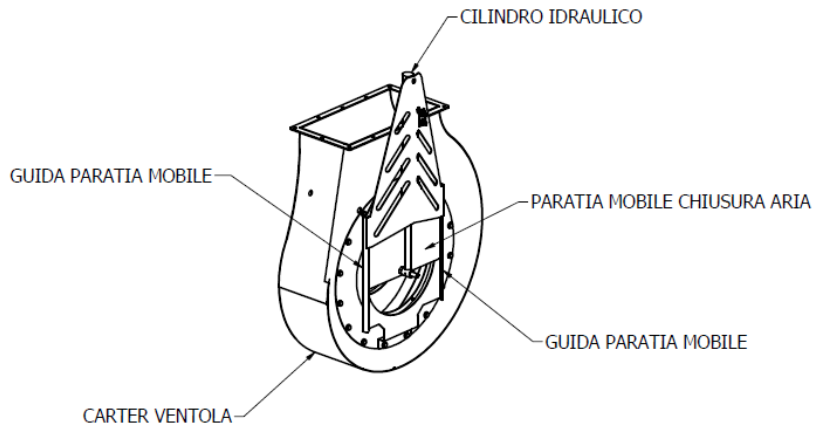


Thanks to a particularly careful study of its architecture, and despite the high useful working width, the atomizer has a steering angle of 220 °, all to the advantage of agile maneuvers even in narrow headlands.

Thanks to its particular three-column configuration, the POWER MULTIROW can treat 6 walls of rows (i.e. 3 complete rows) uniformly at each step, thus guaranteeing an amazing operating capacity; for example, working at about 7 km / h with 2.5 m inter-row , with the POWER MULTIROW it is possible to treat up to 5.4 ha / h.

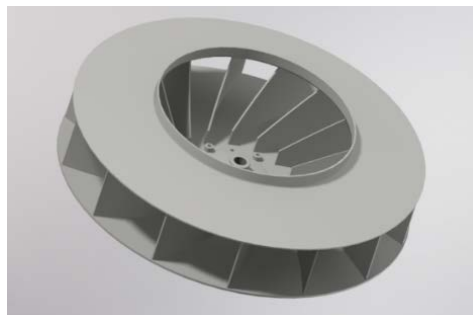
Mobile bulkhead

The POWER MULTIROW has a hydraulically movable bulkhead, which divides the intake section of the fan, thereby adjusting the air flow to the actual need for the treatment, avoiding harmful excesses that would entail an increase in both the dispersed product beyond the target that of the tractor's diesel consumption.



The new centrifugal fan in steel sheet \varnothing 570 mm ensures first-rate performance, thanks also to the oversized 825x250x500 mm casing and \varnothing 200 mm ducts. This allows the POWER MULTIROW to move an air volume that can reach 22,000 m³ / h at extremely high speeds.

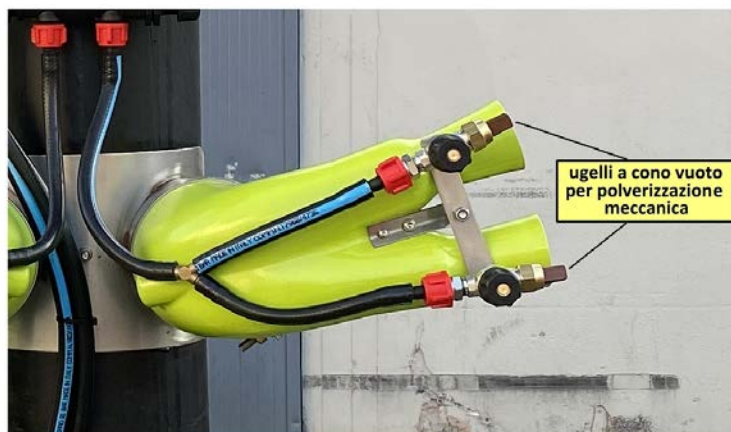
Compared to the most common and economical tangential fans, the typical operation of the centrifugal fan creates a less turbulent motion, better channeled in the ducts, and therefore with a greater homogeneity of the flow to the delivery outlets.



Pneumatic and mechanical pulverization

A further significant added value of the POWER MULTIROW is to be equipped at the same time with both the innovative pneumatic spraying system of the liquid vein and the more traditional mechanical spraying system. With the pneumatic solution, it is possible to achieve a very high atomization of the liquid vein, for which 90% of the droplets have an average diameter of about 80 μm , to guarantee a coverage (with the same vegetated surface) similar to that of traditional machines, but with far less water. Precisely for this reason, pneumatic spraying machines are defined as "low volume".

Thanks to the presence of empty cone nozzles, located outside the air flow, which pulverize the liquid vein by means of the hydraulic pressure generated by the pump, with the POWER MULTIROW it is now also possible to modulate the quantity of air without affecting the flow rate of the mixture and the diameter of the droplets dispensed. It is therefore possible to maintain the pre-set dosage of product per unit of surface to be treated and an always optimal coverage, even by operating with partialized air flows.



In fact, thanks to the empty cone nozzles, the degree of pulverization of the mixture remains constant, regardless of the air flow rate, thus avoiding the typical notable enlargement of the droplets (with consequent decay of the degree of vegetation cover) when it is drastically reduced (or even zero) the air flow to carry out the treatments near sensitive areas.

The electrostatic charge

A further innovation introduced on the POWER MULTIROW is the transfer of an electrostatic charge (positive) to the droplets produced, which facilitates the deposition on the vegetation because the latter, having the opposite (negative) charge, typically attracts them. In this way, the drops are less sensitive to being transported off target due to environmental air currents. The phenomenon is similar to the magnetic attraction between opposite poles: thanks to this, in addition to significantly reducing the drift effect, the uniformity of coverage can be further improved, because the droplets electrostatically charged in the same way also tend to repel between of them, avoiding aggregations (and therefore the formation of larger particles) during the journey between the atomizer and the vegetation. But that's not enough: always thanks to the electrostatic charge, even if they exceed the leaf mass, the drops remain strongly attracted by the vegetation and could still settle on the opposite page of the leaves.

Description

The electrostatic generator for VMA atomizer consists of a single board made with modern SMD technologies through automatic processes, in order to guarantee maximum reliability and repeatability. The card is resined to allow high operating voltages in small spaces. The circuit consists of an intermediate voltage booster generator connected to a voltage multiplier that brings the output voltage to 18kV.

The circuit is equipped with the following hardware protections:

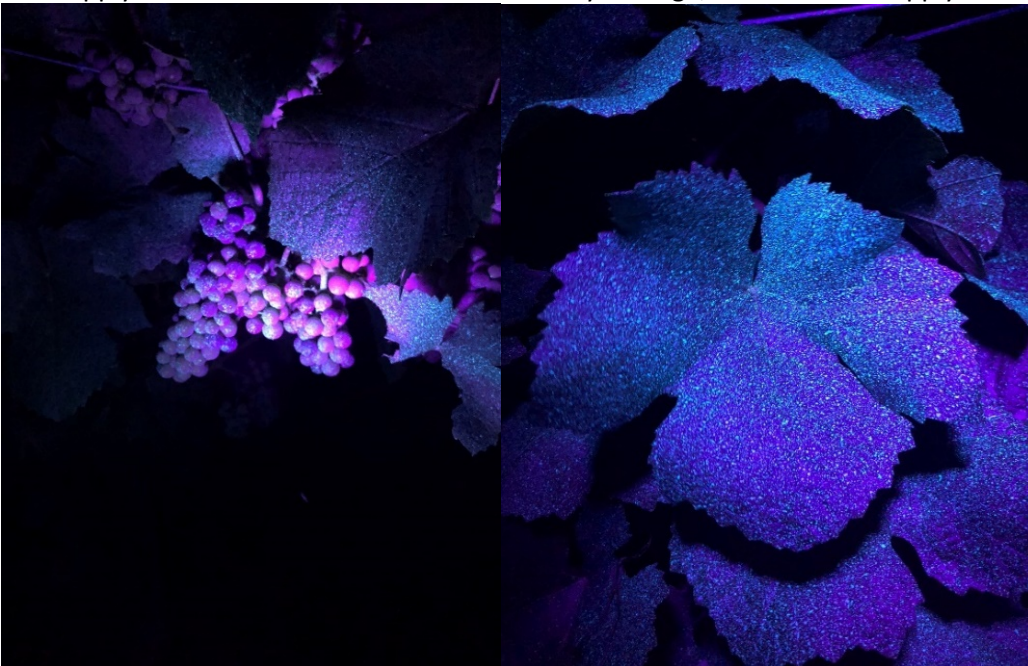
- reversing the power supply polarity: it is possible to reverse the power supply polarity without damaging the card.
- self-resettable electronic fuse: in case of excessive absorption, this fuse cuts off the current when it heats up. When it is turned off, it resets and the board can be turned on again, thus avoiding replacing the fuse.
- surge arrester on the input voltage, in case of excessive battery voltage it intervenes protecting the electronic board from faults.

How does it work

The circuit consists of an intermediate voltage booster generator connected to a voltage multiplier that brings the output voltage to 18kV.

The electrostatic system, connected to special electrodes positioned near the nozzles, generates a positive electric field capable of inducing a negative charge in the air that is emitted by the atomizer. The ions are then attracted to the electrode but before they can reach it they are incorporated into the treatment flow thus transferring the negative electric charge.

Since the vegetation often has a natural positive charge, even if weak, due, for example, to the presence of potassium cations, the liquid is attracted to the vegetative wall with a positive charge, greatly reducing the effects of drift and further reducing the quantity of plant protection product to be used. The air flow also has the task of preventing the water jet and the electrode from ever coming into contact. In any case, a safety device included in the system activates in the event of a short circuit and immediately cuts off the power supply to the electrodes in order to avoid any damage, after which it supply after a few seconds.





Basic standard Equipment with:

To ensure maximum reliability over time, VMA has always used only first-rate materials and devices for the realization of its products. The POWER MULTIROW 2020 sprayer includes for example the following features, already included in the standard equipment:

- hot galvanized steel frame treated with high adhesion bottom, metallic paint and transparent protective;
- ventral and lateral bumpers, also in steel;
- hubs adjustable in height;
- main tank with a capacity of 1000/2000 lt, made of high density polyethylene complete with mixer of the phytoiatric product, level indicator, hand-washing tank, circuit washing and can washing;
- fan casing in hot galvanized and painted sheet steel;
- high performance centrifugal fan in steel sheet \varnothing 570 mm;
- Comer mechanical gearbox in oil bath, with 2-speed gearbox;
- disengagement of motion towards the fan and centrifugal clutch on its shaft;
- three-diaphragm pump in 135 l / min anodized aluminum Made in Italy, with a maximum operating pressure of 20 bar;
- electro-hydraulic control of opening, closing, height and width adjustment of the lateral distribution devices;
- command control unit for controlling the delivery of the individual nozzles, both for pneumatic and mechanical spraying.