

SwingStop pro

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Improved accuracy of spray pattern distribution via highly-dynamic rate regulation

The SwingStop system, developed by AMAZONE in cooperation with Rometron, combines the active pendulum limiter SwingStop with a highly-dynamic rate regulation of each individual nozzle. This metering system operates according to the principle of pulse width frequency modulation.

In conjunction with the active, electro-hydraulic ContourControl boom guidance, the Super-L2 boom is optimally guided at the correct height via 6 ultrasonic sensors. In hilly terrain the boom ends can react very quickly both upwards and also downwards. The symmetrical horizontal movement (to and fro or yaw movements) of the boom are actively remedied via SwingStop. Via acceleration sensors in the booms the relative horizontal movement of the boom is determined in relation to the forward speed of the sprayer. Two hydraulic rams in the centre section of the boom actively counteract these swing movements. The result is that the boom rides smoothly.

In a further level of expansion, SwingStop calculates, with the aid of sensors now in real time, the relative speed of every individual nozzle, putting them in a ratio to the forward speed of the sprayer and variably adjusts the relevant application rate. This is enabled via new nozzles with special pulse width frequency modulation, where the ratio of how closed or open the nozzle is changes in a frequency range of 0 to 50 Hz. These valves switch highly-dynamically so that each can be opened or closed in 2ms. Thanks to this high switching speed, the rate of the spray agent can be varied directly and steplessly between 30 % and 100 %. That means: when the nozzle moves quicker than the sprayer, the opening time and thus the rate is increased for a short time. If the nozzle is slower, it remains closed longer and the application rate is reduced.

As a result SwingStop pro features as yet unprecedented levels of application accuracy over the entire boom width of the sprayer because, now, any disruptive factors resulting from horizontal movements of the sprayer boom can be compensated for.

Source: AMAZONEN-Werke H. Dreyer GmbH & Co. KG