

The case of Casella Macchine Agricole

Reduced impact on the environment for painting of agricultural irrigators

Alessia Venturi
Anover – Vimercate (Mi)

1 - Panoramic view of Casella's production plant.



2 - An irrigator manufactured by the company.



3 - A motor pump for effluent distribution.



Introduction

The firm Casella Ugo began business in 1950 as a repair shop for farm machinery; in 1954 it changed its name to Casella Fratelli di Ugo & Co, a change that heralded the manufacture of harrows, cultivators, elevators and trailers.

In 1979 the company underwent a drastic transformation and began manufacturing irrigation machinery, a market in which it has become a leader, as well as manufacturing and selling other agricultural equipment, but above the sale of tractors.

Over the years, the changes to the original company have laid solid foundations for the current company, Casella Macchine Agricole (fig. 1), now occupying a 50,000 sq. m site with 20,000 sq. m of indoor facilities, whose core business is production and marketing of irrigators (fig. 2), fertigators (fig. 3) and underground irrigation systems. A success story based on the quality of the machinery manufactured, thanks to increasingly more innovative and efficient technologies, plus the quality of the products and of the service.

Casella's strengths include the excellent finish of its machinery, achieved with high solid paints applied by the company itself, which has recently equipped its paint booths with plant optimisation equipment to further reduce emissions of solvent into the atmosphere.

The painting cycle

Accompanied by Paolo Casella, one of the brothers who now run the company, and by Simone Barbieri from ATE in Cesano Mademo (Mi), who installed the Atimix equipment (fig. 4) on the



4 - The Atimix equipment installed in Casella's paint shop.

5, 6 - The agricultural machinery production and assembly shops.

7 - The two manual electrostatic painting ovens.

8 - An irrigator without its irrigation hose: the chassis and wheel, which are painted separately, are clearly visible.



painting systems, I visited Casella's production plant at Carpaneto Piacentino (PC) to see the advantages, for the environment and quality to start with, but also with regard to savings on paint, that the company has achieved with these plant innovations.

After production and assembly of the machinery (figures 5 and 6), also carried out within the company, the painting cycle comprises the following stages:

- washing and pre-treatment
- application of a grey base coat
- application of the metallic blue colour
- transparent finish
- drying.

The three coats of paint are applied in two large oven booths (fig. 7) the largest one for the chassis, and the smaller one (fig. 8) for the irrigation wheels. Paint application is electrostatic and has to be manual given the complexity of the shapes and the considerable size of the machinery. The company's daily paint consumption in the two booths is around 50 kg.

The advantages of installing Atimix

Casella's main aim when deciding to install the Atimix equipment in the paint shop was to improve the quality of the coating, make application easier for operators, and reduce emissions of solvents from the chimney. The results actually achieved were as follows:

- an average saving 15-20% per coat on paint;
- drastic reduction of solvent required to dilute the paint: the company states that before installing the equipment 20% of solvent was used to dilute the base coat, 10% for the colour and 5% for the transparent coat; it is now no longer necessary to dilute either the transparent finish or the blue colour coat, while only 10% of solvent is required to dilute the base coat;
- booths are much cleaner and overspray is reduced;
- thicknesses are constant and the film is smoother;
- reduction of the air used to spray: the company has gone from 5 atm used before installation of Atimix to 3.7 atm thanks to better penetration of the paint into corners and undercuts;
- reduction of the size of spray nozzles, from 1.5 to 1 to avoid applying too much paint.

Conclusions

"I would say that we have fully attained the aims that we set ourselves initially," explains Paolo Casella, "and I can say that we have also achieved advantages that we did not expect, like the considerable savings on paint that we have quantified at around 2 kg for every finished machine. The paint is now denser and gives higher coverage to each item with less dilution. Using this equipment has not only been beneficial to our products, but also to the paint shop operators who work in a cleaner and less polluted environment, and to the atmosphere since by reducing dilution and the quantity of paint used, we have also reduced COV emissions.