

# Case Study

## THE CHALLENGE

### *FIXING THE FLAWS IN WOOD FLOOR FABRICATION*

## PROBLEM

A maker of engineered wood flooring contacted us because they were wasting considerable amounts of coatings during the manufacturing process.

The company was spraying resins, waxes, water and release agents onto the wood. However, variable production runs of different woods needed variable flows of each of the coatings. A minimum quality of each was required to ensure production quality. Yet, with a single set of nozzles the worst case scenario was deployed meaning for most production runs overspraying occurred.

Changing the flow rates between production runs to reduce overspraying was problematic as only flow pressure could be varied. Because this is a fairly crude method of flow control, production quality issues resulted. So, overspraying - it was estimated that 5% of the fluids sprayed were wasted in this way - was accepted as a cost.



## SOLUTION

The Hydropulse Industrial Design (EHPi) electric spray nozzle allowed dosing to be controlled via pulse width modulation (PWM). Combined with a FlexFlow programmable control panel system, different production runs and their varied dosing requirements could be programmed.

This meant different production runs could be optimized from the same set of nozzles, reducing overspraying.

EHPi spray nozzles do not require a compressed air source and are capable of cycling on/off up to 50 cycles per second.

When the spray cycles at a high enough frequency, coverage uniformity is maintained because the duration between pulses of spray is short enough to ensure there are no gaps in the coverage.



# PRODUCT

The electric-actuated HydroPulse Industrial Design (EHPI) spray nozzle assures precision volumes of expensive ingredients and compounds are sprayed directly onto the processing target, with overspray waste virtually eliminated.

Used with a control system such as our FlexFlow control panel manufacturers can ensure precision control and flexible automation. FlexFlow panels can manage up to 20 spray nozzles in up to 20 independently controlled spray zones.



<b>Electric Hydropulse® - Industrial Design</b>	
Liquid inlet connection	1/8", NPT or BSPT
Maximum liquid flow rate	3.8 LPS
Maximum rated pressure	20.7 bar
Thermal insulation class	F (155°C/311°F)
Power	10.4W @ 24VDC
Maximum cycle frequency	50 cycles/sec
Nozzle construction	Stainless steel wetted components, Viton® (FKM) seals
Interchangeable BJ, BJH and CW nozzle tip options	

## BENEFITS OF EHPI

- Ensure precise application and reduce waste
- Integrate tonnage or line speed to maintain uniform coverage when variables change
- Reduce the use of expensive resins, waxes, or release agents by applying the exact volume required
- Apply the optimal amount of surface moisture to increase production by decreasing time in the press
- Confidently transition to running full polymeric MDI products with non-stick press protection
- Eliminate compressed air from most pre-press and wax operations

# CONCLUSION

Following the trial of the EHPI nozzle system, the engineered wood flooring company installed the nozzles across all of their production lines. Coating was uniform across all wood types, eliminating overspray which had amounted to a costly waste of expensive coating materials.

The company estimated that the 5% reduction in wasted materials meant the new spray nozzle system paid for itself in a matter of months.

Orbitor Eco



THE  
**SPRAY NOZZLE**  
PEOPLE