

AUTOMATED HUMIDIFICATION SYSTEM SAVES AKV 1 A FULL WORKING DAY EACH WEEK



PROBLEM:

ARGE Konrad Versatzaufbereitung Los-1 Redpath Deilmann GmbH/ Thyssen Schachtbau GmbH c/o DBE - Schachtanlage Konrad is more commonly referred to as "AKV 1". The company specializes in the construction and modification of underground tunnel chambers that are used to store nuclear waste. Part of this process requires them to apply layers of shotcrete in a 10m diameter tunnel.

Before applying the shotcrete they have to moisten the reinforced concrete formwork for 12 to 24 hours. This humidification is performed manually with a flat spray nozzle mounted on a spray gun.

Unfortunately, German law doesn't allow AKV 1 to work on Sundays. As a result the necessary humidification process can only start on Monday morning and the shotcrete can only be applied on Tuesday. This means a full working day is lost whilst they are waiting for the humidification process to finish.

To reduce the hinderance AKV 1 decided to look for an automated humidification system that could be set to start the process on Sunday. That way the team could start applying the shotcrete on Monday morning. As an added bonus an automated humidification system would also be able to perform a better, more even, result.



SOLUTION:

Our local spray expert was called in to review the different options for humidifying tunnels with a 10 meter diameter. The specifications required the proposed solution to cover a distance of 5 to 7 meter with a spray width of 3 meters to achieve the desired result.

As a solution we decided on a FogJet® moisturizing system that combines multiple Spraying Systems Co. products:

- FogJet® low pressure nozzles were selected to guarantee an optimal droplet size for humidification
- The AutoJet® Leo Oscillator controls the swivel movement
- A WindJet® blower provides accelerated air
- The AutoJet® controller takes care of the timing, swivel movement and fluid regulation

On Friday an employee can easily set the system so that it automatically starts humidifying for 12 to 24 hours on Sunday - right in time for the new work week.

REDUCED WATER USAGE AND BETTER HUMIDIFICATION RESULTS



Spraying Systems Co.®
Experts in Spray Technology

**SUSTAINABILITY.
APPLIED.**



AUTOMATED HUMIDIFICATION SYSTEM SAVES AKV 1 A FULL WORKING DAY EACH WEEK – *Continued*

RESULTS:

AKV 1 was happy to note that the system was easily implemented and performs as expected. Because humidification is no longer a manual process the water is more evenly distributed around the reinforced concrete formwork. The worker responsible for the manual application has been allocated to a different role. Additionally, the automated process uses a lot less water than the old manual solution.

The main difference compared to the old solution though is the fact that it's automated. No longer do employees have to wait for the humidification process to finish before

they can start the shotcrete process. One employee just sets the system to start humidifying on Sunday and by the time workers come in on Monday they can start applying the shotcrete.

The end result of implementing the new system is that AKV 1 could make some significant savings:

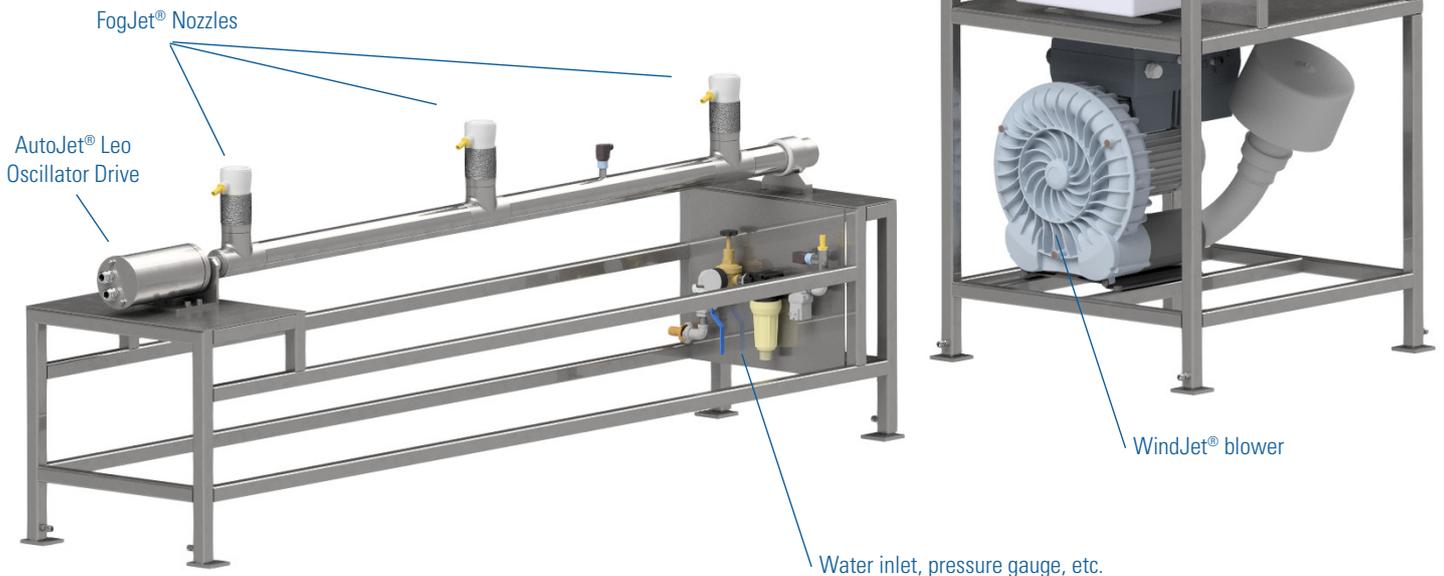
- One employee could be allocated to a different role
- The automated system uses a lot less water
- Shotcrete can be applied from Monday until Friday

A CLOSER LOOK AT THE FOGJET® MOISTURIZING SYSTEM

The 3D-printed **FogJet® LP nozzles** provide a streak-free, uniform hollow cone spray pattern. Very fine drops achieve misting performance



AutoJet®
Control cabinet



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