Bucceri Snow
Fog Method

The World's First Zero Degrees Fog Snowmaker:
Redefining Efficiency

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Unlocking Profitable Snowmaking at 0°C (32F): The Fog Mode Advantage

Ski resorts face a critical challenge: the shrinking window of opportunity for cost-effective snowmaking.
Climate change is disrupting the delicate balance between ski season timing and optimal snowmaking conditions.
While opening days aligned with holiday periods remain fixed, the traditional window of ideal snowmaking temperatures, typically around -3°C wet bulb (27F), once found at this time is becoming less reliable. Warming temperatures are pushing this optimal window towards 0°C (32F), hindering the effectiveness of traditional fan guns designed for colder conditions.
This creates a critical mismatch: resorts need to make snow when the weather is less favorable for their most efficient equipment, forcing them into costly alternatives and jeopardizing the success of the ski season.
This results in higher snowmaking costs and threatens the return on infrastructure investments.
But a revolutionary solution has arrived: Fog Mode snowmaking offers a breakthrough solution, enabling efficient snow production at 0°C (32F), maximizing snowmaking potential, and securing the future of winter resorts.
Fog Mode snowmaking technology, developed by Bucceri Snow offers a breakthrough for ski resorts struggling to maintain profitable snowmaking operations in the face of rising temperatures. This innovative approach enables efficient and high-quality snow production at the crucial 0°C wet bulb range, effectively reclaiming those lost snowmaking hours and ushering in a new era of sustainable winter operations.

Fog Mode snowmaking utilizes a unique combination of atomized water, super-cooled snow, and a fine "fog" mist to maximize heat transfer and ice crystal formation at 0°C (32F)
This allows resorts to:

- **Reduce snowmaking costs:** Achieve significant savings compared to traditional ice-making methods.
- **Increase snow production:** Maximize snow output during the critical 0°C (32F) window.
- **Improve snow quality:** Create natural-feeling snow for an enhanced guest experience**.**
- **Enhance sustainability:** Minimize energy and water consumption**.**

We believe Fog Mode snowmaking is a game-changer for the ski industry, it empowers resorts to overcome the challenges of climate change and maintain profitable operations while providing exceptional snow conditions for their guests.

Here's a breakdown of how the Fog Mode works at the most critical temperature for snow making:

Advanced Core Snow Generation:

- We begin by atomizing water, creating a fine mist. Even at 0°C (32F), this process dramatically increases the water's surface area, which is crucial for rapid heat transfer.
- This atomized water is then projected into a controlled airstream, also at 0°C(32F). This airstream facilitates the removal of the latent heat required for the water to freeze.
- Critically, we introduce a volume of machine-made snow, produced at -10°C (14°F) or below. This significantly colder snow acts as a highly effective "heat sink," drawing heat away from the atomized water at an accelerated rate and providing abundant nucleation sites for ice crystal formation. The colder snow enhances the efficiency of the phase change.

Enhanced Efficiency with "Fog" Integration:

- Building upon established refrigeration principles, we incorporate a "fog" component, representing up to 50% of the machine-made snow volume.
- This fog is an extremely fine mist of water droplets, further increasing the surface area exposed to the cold airstream.
- This extremely fine mist allows for even faster heat transfer, and greater ice crystal creation.
- This collision of fog, ambient air and snow done at the exit allows for greater snow production.

Controlled Freezing and Deposition:

- The powerful controlled airstream of 0 degrees Celsius (32F) and below allows for hang time allow for optimal freezing before the particles reach the ground.
- Upon landing, the partially or fully frozen particles continue to stabilize, with the final state dependent on ground and air temperatures.
- By controlling the mixture of snow, atomized water, and fog, we can control the final product.

Economic Advantage and Technology Bridging:

- Our technology fills the critical void between traditional plus-temperature ice-making, which is often energy-intensive and produces less natural-feeling snow, and the fan gun technology that is typically only efficient below -3°C (27°F).
- At 0°C, traditional methods rely heavily on ice production which is costly and less efficient.
- By using super cooled snow, and the fog mixture, this technology allows for the economic production of snow at 0 degrees Celsius (32F).
- Our system offers a more economical solution for snow production at 0°C (32F), delivering higher volumes of quality snow with reduced energy consumption.

Key Advantages:

- Increased snow production with reduced energy consumption.
- Improved snow consistency and quality, simulating natural snowfall.
- Enhanced efficiency in a wider range of temperature conditions, especially between 0°C (32F) and -3°C (27F) Wet Bulb.

By combining these elements, we deliver a reliable and efficient snowmaking solution tailored to your specific needs, effectively bridging the gap in existing snowmaking technologies.

But the advantages do not stop there as the Fog snow making method is built into the patented Bucceri Snow Hybrid which represents a paradigm shift in snowmaking technology.

It's the only machine that seamlessly adapts to all temperature conditions, ensuring consistent and efficient snow production.

Three Modes, One Machine:

- In above freezing temperatures, our patented ice system delivers perfect snow, eliminating the limitations of traditional methods like fan guns that cannot be used in these conditions.
- At the critical 0°C (32 F) range, our advanced fog system maximizes efficiency and output.
- When temperatures drop below -3°C (27F) wet bulb, the Bucceri Snow Hybrid transforms into a powerful fan gun, matching the performance of competitors when the same proportions of atomized water, ice nuclei and air are mixed in a below freezing environment.

True All-Temperature Solution:

- This versatility eliminates the need for multiple snowmaking systems, simplifying operations and reducing costs.
- In future, the Bucceri Snow Hybrid will be the only machine you will need.

The Bucceri Snow Hybrid system represents a significant advancement in snowmaking technology, providing comprehensive control over snow production irrespective of ambient weather conditions.

This system integrates established snowmaking methodologies with proprietary enhancements, effectively bridging the performance gap between conventional ice-making and cold-temperature fan gun systems.

Our all-weather ice machine modules or containerized systems offer substantial operational and maintenance efficiencies.

Bucceri Snow, a leading innovator in sustainable and efficient snowmaking solutions, is currently conducting demonstrations and consultations regarding its Fog Mode technology.