



Snowfactory – Snow without limits





Main Snowfactory advantages:

I. Technology:

- Worldwide proven and working technology
- Many different models available
- Industrial production
- Made in Germany, TÜV...

II. Additional snowmaking solution:

- Season can be planned because 24/7/365 snow production
- Snow guarantee
- Plug & Play

III. Snow:

- Very low melting rate because
 - Low heat exchange from dry ice to air
 - Additional cooling energy because snow has -5°C (23°F)
- Many different transport options: blowing in pipes, trucks etc...

IV. New snow gun from TA:

- On site contacts
- Service on site
- Hotline
- Integration into Atass Plus





Technology:

The Snowfactory is based on a refrigeration process similar to an air conditioning. The snowmaking process can be seen in the picture below. Water is sprayed onto the inner wall of the icemaker which is equipped with a double wall. The refrigerant gets injected in-between those two walls with a temperature of -30°C (-22°F). This cools down the inner wall of the icemaker to -20°C (-4°F). So the water freezes completely, gets harvested and leaves the icemaker with around -8°C (-17°F).

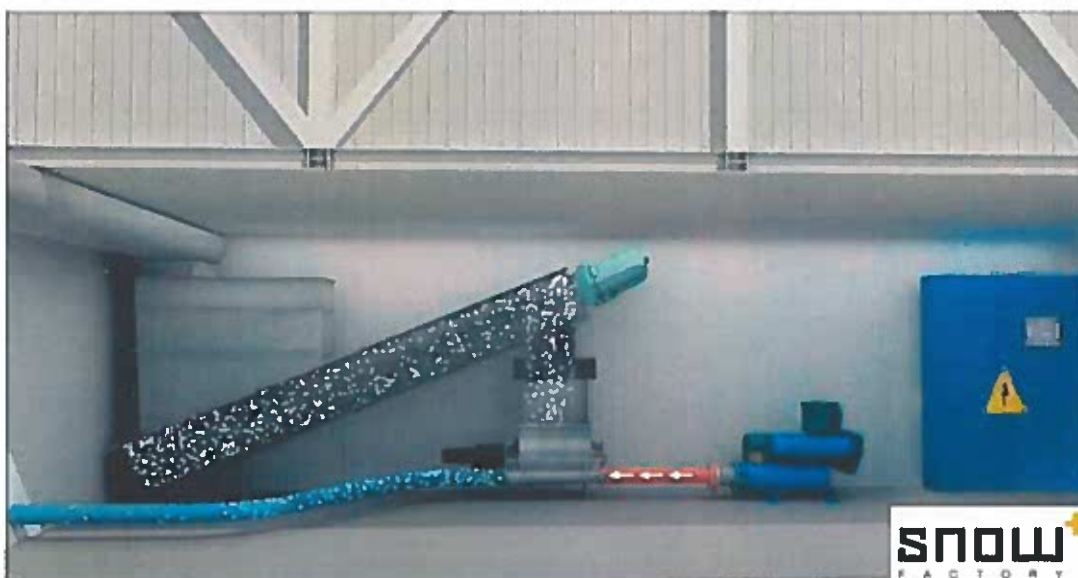


The small ice flakes fall then into the below snow distribution system.



Snow distribution:

Due to the fact that the snow is completely dry and has no liquid water content in it we can blow the snow. The Snowfactory has a rotary airlock valve and a blower installed. To understand the principle please find the below schematic pictures. The snow is collected in a screw conveyor and transported into the rotary airlock valve. The valve is connected to a blower on site which pushes the snow through the valve and in the pipe.



Water quality:

The water must be very clean and free of biological content. Portable water (drinking water) preferred.

SNOW⁺

F A C T O R Y

SNOWFACTORY 100 This is a mobile unit.

We have made snow with these units lately in Paris (February 2014), Zürich (September 2014) and Tbilisi Georgia (Mai 2015). One machine will now (August) be installed in Norway. The machine is installed completely in one 40' container and therefore mobile. After the delivery it is just necessary to connect water, electricity and the snow pipe for distribution of the snow.



Technical data:

Technical specifications for water temperature 41' and air temperature 15°C:

Production: 45 tons. Equivalent to approx. 3531 cubic feet every 24 hrs.

Water requirement: 13 gpm at a pressure of 30 -50 psi

Design ice thickness: 1-1,5mm

Power supply: 380V / 60Hz / 3Ph (others available)

Power consumption: approx. 120 kW and 216A

Electrical protection: 315A

Number of ice maker: 2 pieces (chromed)

Dimensions: One sea container 40' X 8' 6"

Refrigerant: R404A

Snow distribution: standard up to 60' (if required also up to 600' length)

Summary:

Technical specifications for water temperature 41' and air temperature 60':

	Unit	SF100
Snow production	tons/day	45
Snow production	ft ³ /day	3531
Water consumption	gpm	13
Power consumption	kW	130
Dimension (l x w x h)	Ft.	40 x 8.5 x 8.5
Water pressure	psi	30 - 40
Refrigerant	Type	R404A



SNOWFACTORY 220

This is a permanent installation: TA has installed this unit in October 2014 in the resort Ruhrquelle/Winterberg in Germany (north of Frankfurt). Another one will be installed in August in Sjusjoen Norway.



The SF220 model is made of 3 units which need to be connected on site:

- 40' container where electrical cabinets, cooling compressors, ice-makers etc. are installed
- 40' container which sits below the snowmaking container to collect snow and a blower for snow distribution
- Evaporative Condenser which sits next to the 40' container

These 3 units are installed and connected on site.

Technical specifications for water temperature @ 41' and air temperature @ 60':

Snow production/day: 110 tons or around 7770 cubic feet ever 24 hrs.

Water requirement: 20 gpm at a pressure of 30 -40

bar El power: 227 kW

Snow distribution: standard up to 60 feet (if required also up to 600 ft.)

Refrigerant R717 (ammonia)

Summary:

Technical specifications for water temperature 41' and air temperature 60':

	Unit	SF220
Snow production	tons/day	110
Snow production	ft ³ /day	7770
Water consumption	gpm	20
el power consumption	kW	230
Dimension (l x w x h)	Ft.	2x (40 x 8.5 x 8.5) +19' x 8' x 8')
Water pressure	psi	30-40
Refrigerant	Type	R717





SNOWFACTORY 220/440/660/880...

Snowfactorys bigger than the SF220 will be realized by adding several of these units achieving so 440 (15400ft³), 660 (23100ft³), 880m³(30800ft³)/day. The components will just be doubled/tripled and so on.

There is also the possibility to install in this case all the single components in a building like for pumpstations. Due to the fact that the SF220 can be premanufactured it makes economically more sense to send several pieces of SF220 instead of on site installation of all the components.

References:

Rentals 2014+2015:

- Paris
- Freestyle.ch
- Tbilisi Georgia

Sales 2014:

- SF220 Winterberg – Germany

Sales 2015:

- 1 x SF70 Bangkok – Thailand
- 1 x SF100 Geilo- Norway
- 1x SF100 Idrje Fjäll - Sweden
- 2 x SF100 German ski federation
- 1 x SF220 Sjusjoen Skisenter – Norway
- 1 x SF100 Skiforeningen - Norway

Rentals 2015:

- Biathlon Arena Lenzerheide
- Sölden
- Tbilisi Georgia
- Oberhof -DE

TechnoAlpin has worldwide many projects in the pipeline for the next years.



Pictures

Snowfactory 220 Winterberg



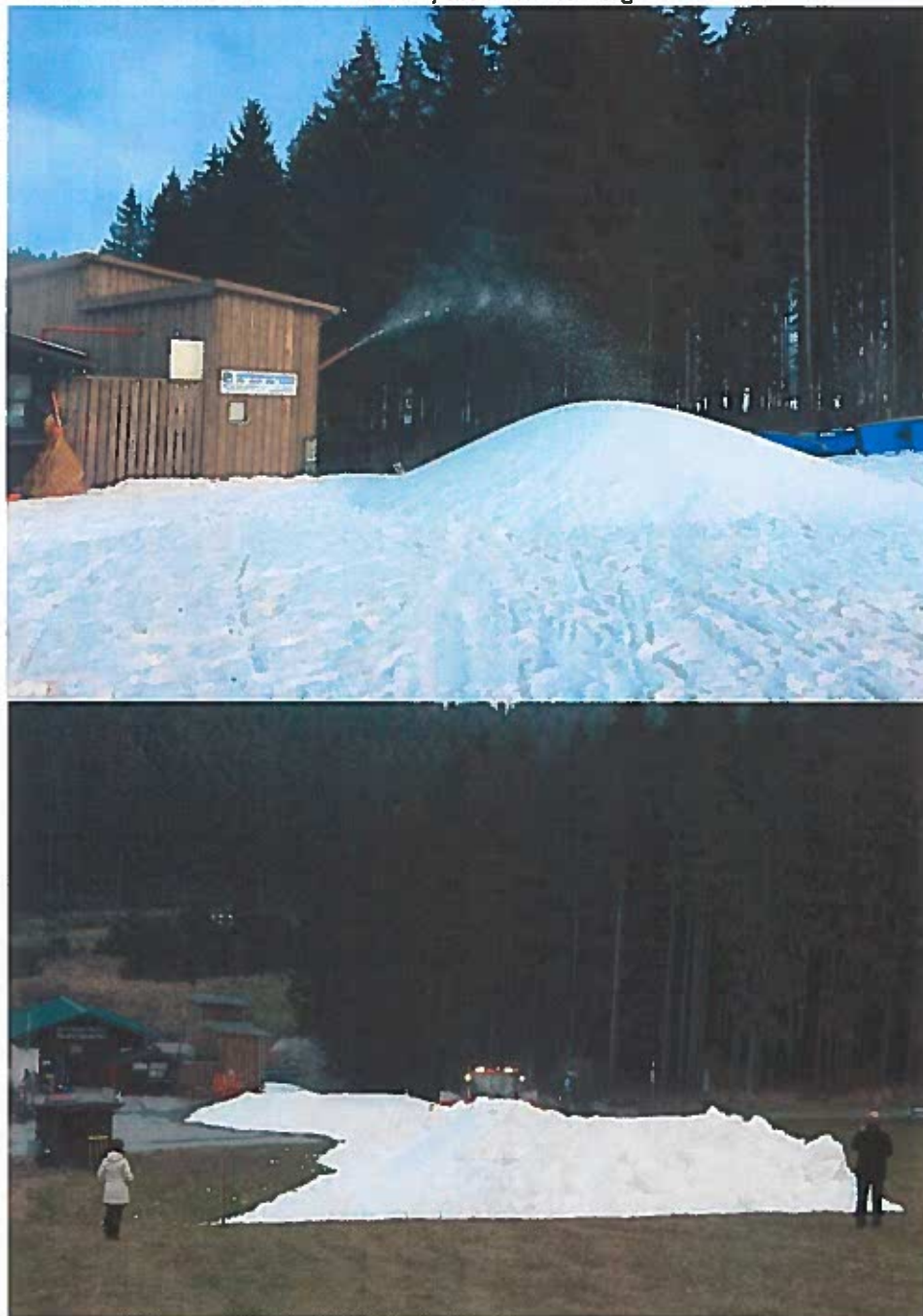
Picture of slope in Winterberg 10 days after first opening. Snow sticks very good together!



SNOW⁺

F A C T O R Y

Snowfactory220 in Winterberg



SF100 Lenzerheide Switzerland



SF220 Sjusjoen – Norway



SF100 Idrefjäll – Sweden



SF100 Geilo – Norway



SF100 Klingenthal – Germany

