365 DAYS OF SNOWMAKING

SNOW FACTORY

english

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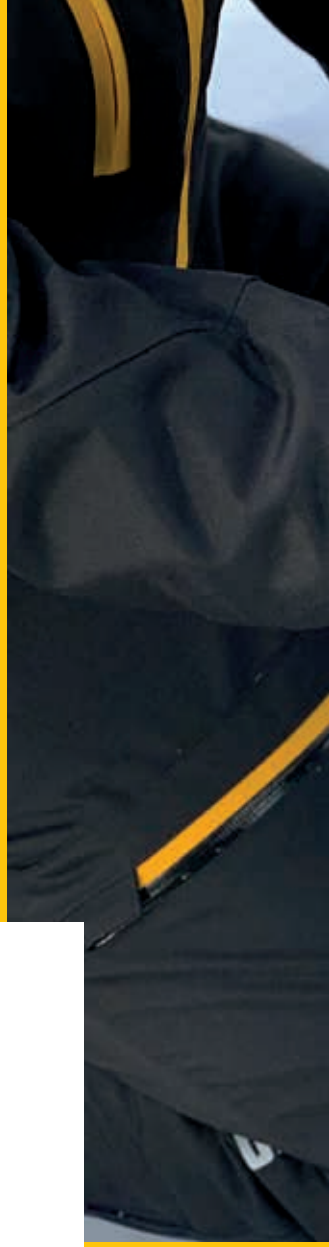

SNOW WITHOUT LIMITS

Snowfactory: making snow, even when temperatures are above freezing

The Snowfactory is an innovative snowmaking technology that can produce snow regardless of air temperatures. It can thus support ski resort operators and competition organisers in planning their operations and events. The Snowfactory is not intended to replace conventional snowmaking systems, but rather to complement them.

The principle The Snowfactory uses an innovative refrigerating technology to produce snow. An efficient heat exchanger cools the water down to freezing point without chemical additives, and enables snow production in a closed circuit no matter what the outside temperature. The snow is made exclusively of water. The consistency and high volumes of the snow make it last longer despite warmer ambient temperatures.

365 DAYS OF SNOWMAKING

The units The Snowfactory does not require any extensive construction work or installations. It is delivered ready for operation in a container to the respective location, and is available both as a mobile and as a stationary unit. The SF100 basic unit has a snow production capacity of 100 m^3 per day. The system can be expanded with modules.

Following connection to electricity and water supplies, snow can be produced twenty-four-seven, regardless of the external conditions at the site. This allows the Snowfactory to be used for temporary installations. The snowmaker's production maturity and tried and tested technology allows the adaptation of a wide range of models and sizes to individual requirements.

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OUR SNOW IS YOUR SUCCESS

Application areas The Snowfactory was designed for the purpose of making the snow experience accessible to people all over the world, no matter where they are. It is suitable for making snow on low-lying sections of the slopes and increases planning reliability for Nordic centres. The Snowfactory can also be used for indoor and outdoor events of all kinds.

APPLICATION AREAS

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APPLICATION AREA

SKI RESORTS

The Snowfactory guarantees snow on the lower sections of the valley runs and important linking pistes, as it can also be used in warmer temperatures. It produces technical snow, which differs in quality and structure from the snow produced by traditional snowmaking machines but can be prepared in such a way that no difference is noticeable. The Snowfactory is not used as a substitute but rather as a supplement to traditional snowmaking machines. With the help of the Snowfactory, snow capacities can be increased in warm temperatures, so that the start of the season can be guaranteed. Its use not only allows an earlier start but also a longer season for ski resorts.

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The Snowfactory is used worldwide to guarantee snow reliability:

- Ski Apache **(USA)**
- Châtel and Super Besse **(France)**
- Gleenshee, Glencoe, Lecht and Cairngorm **(Scotland/United Kingdom)**
- Vallasen and Idre Fjäll **(Sweden)**
- Kurza Gora and Winterpol - Karpacz **(Poland)**
- Moninec and Ostrava **(Czech Republic)**
- Poppenberg and Klante in Winterberg **(Germany)**
- Mt. Buller, Lake Mountain and Mt. Baw Baw **(Australia)**
- Whakapapa **(New Zealand)**

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MT. BAW BAW

The Mount Baw Baw ski resort (Australia) near Sydney has been relying on a Snowfactory SF100 since the 2018 winter season. The operators use the technology to guarantee snow reliability for their guests, which is all the more important in view of the resort's short snow season. The resort's general manager, John Fascio, recounts: "We are very impressed with the positive development in our operations." John is not only impressed by the predictability of snow production, but also emphasises that "Snowfactory snow makes snow farming much easier".

WHAKAPAPA

The Whakapapa ski area (New Zealand) is located on the largest volcano in the country, Mount Ruapehu. The special weather conditions with high humidity and considerable wind speeds in combination with ice-cold temperatures pose a particularly demanding challenge to snowmaking. The resort consequently decided to use a Snowfactory SF210. Thanks to this investment, the Rock Garden trail was able in 2018 to record the earliest season start in over 35 years.

CHÂTEL

The operators of the Châtel ski resort (France) are more than pleased with the innovative temperature-independent snowmaker. TechnoAlpin installed its first Snowfactory SF100 in 2017, a second model was purchased two years later. The two Snowfactorys complement the classic snowmaking system and were acquired to ensure snow reliability and increase production capacities.

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MONINEC

The Moninec ski resort (Czech Republic) decided to use Snowfactory units in 2016 and get the season off to an earlier start. With the help of the Snow-factorys, part of the skiing area was already skiable at the end of October in this season. The main piste awaited the first winter sports enthusiasts bang on time from mid-November. With the official opening on 17 November 2016, Moninec was the first ski resort in the Czech Republic to open for skiing that year.

WINTERBERG

The very first Snowfactory was installed in Winterberg (Germany) in 2014. The popular ski resort is located near the Ruhr area and therefore attracts not only German ski fans but also English, Dutch and Danish skiers. Snow reliability is a particular challenge for the Winterberg region, as the entire area is located at less than 810 m above sea level. Winters are relatively warm and humid. In the 2019/2020 ski season, the two operators, Winterberg Pop-penberg and Skilift Klante, which now use three SF210 and two SF210 units respectively for snowmaking, were able to open early.

CAIRNGORM

Due to the nearby ocean, winters in Cairngorm (Scotland) are characterised by warm temperatures, strong winds and high humidity levels. Winters often have little snow and, due to the difficult weather conditions, the snow windows are usually only very short. December 2019 was the warmest December in Scotland since 1948, making planning reliability all the more important. Even before this difficult season, the Cairngorm operators had decided to support conventional technical snowmaking with a Snowfactory SF210. Along with Cairngorm, four of the five ski resorts in the Scottish Highlands rely on the innovative snowmaking solution, thus guaranteeing the timely opening of the ski season.

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APPLICATION AREA

ALPINE SKI WORLD CUP

The Snowfactory has already proven itself at numerous world cup venues – including the FIS Alpine Ski World Cup. Such important major events always mean a great deal of pressure for the organisers. When a competition cannot take place as planned, this results in a significant loss of revenue. Snow reliability is therefore crucial. To guarantee that there is never a lack of the precious white powder, organisers not only use conventional snow guns but also the innovative technology of the Snowfactory. It ensures snow reliability at an early stage and the competitions can be confirmed on time for the official snow control. “Although the structure of the Snowfactory snow is different than the classic, technical snow, it can be prepared so that no difference is noticeable for the races”, explains Markus Waldner, FIS race director.

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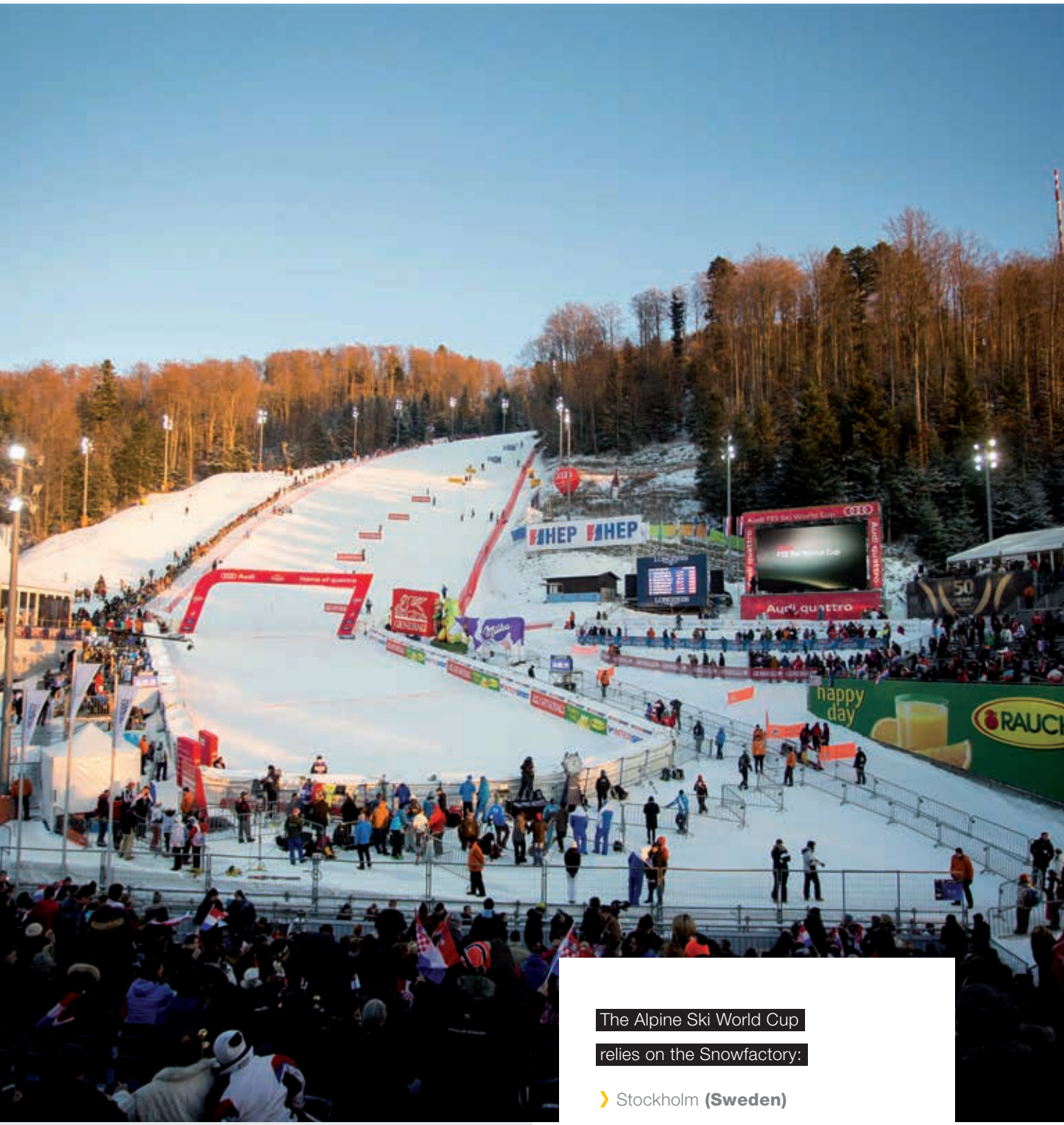

The Alpine Ski World Cup

relies on the Snowfactory:

- Stockholm **(Sweden)**
- DSV **(Germany)**
- Sljeme **(Croatia)**

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© Agence Zoom

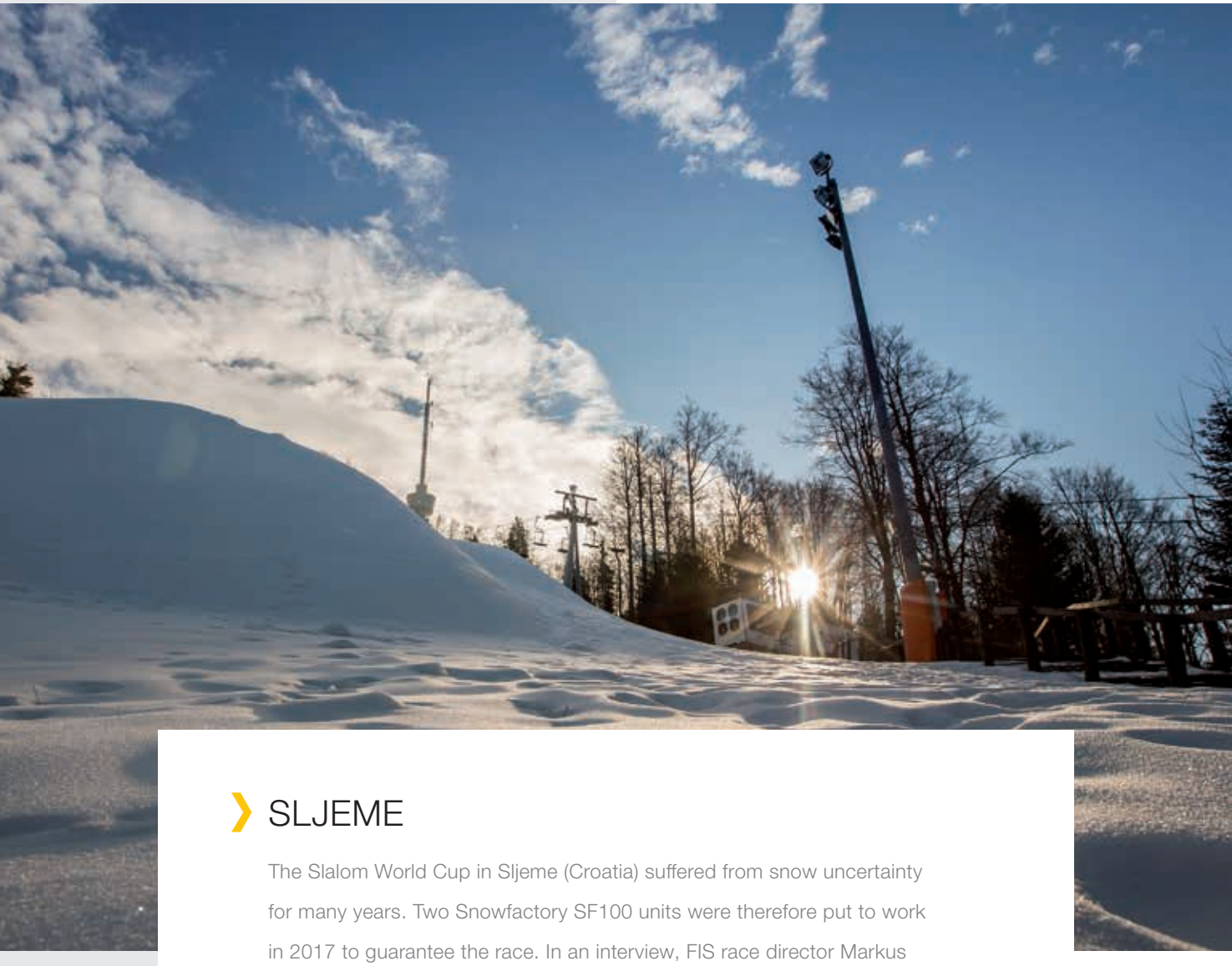
Not just individual venues, but also sports associations rely on the innovative snowmaking technology:

THE GERMAN SKI ASSOCIATION (DSV)

The DSV has opted for the TechnoAlpin Snowfactory and purchased two mobile SF100 units to guarantee snow reliability for training runs and competitions at the various World Cup events. Walter Vogel from the DSV is enthusiastic: “The Snowfactory is a very good investment, it has so far impressed every one of the organisers.”

Offizieller Ausrüster der
Deutschen Ski-Nationalmannschaften

DSV® DEUTSCHER SKIVERBAND



SLJEME

The Slalom World Cup in Sljeme (Croatia) suffered from snow uncertainty for many years. Two Snowfactory SF100 units were therefore put to work in 2017 to guarantee the race. In an interview, FIS race director Markus Waldner emphasised how indispensable the Snowfactory had also been for the organisation of the tournament in 2020. “Using the Snowfactory in Sljeme was of paramount importance this year: without it, the races could not have been confirmed on Snow Control Day. The Snowfactory made it possible to cover the last section of the racing track with snow. The traditional methods of snow production on their own would not have been sufficient to hold the races.”

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APPLICATION AREA

CROSS-COUNTRY SKIING AND BIATHLON

Cross-country ski tracks need to be prepared on time for the start of the season to cater to the increasing numbers of winter sports enthusiasts. In this case, the use of the Snowfactory can be decisive. It guarantees the snow volumes required for the high-quality preparation of the tracks, and can ensure they are opened punctually for the start of the season, or even earlier if required. Snow reliability is particularly important for the venues of international competitions. Biathlon arenas and Nordic competition centres are usually located at lower altitudes than alpine skiing areas. The snow windows are therefore even shorter at these locations, and the use of the Snowfactory all the more important.

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© Enrico Langer

Snowfactory produces snow

for Nordic skiing around the world:

- Mt. Van Hoevenberg **(USA)**
- Sjusjøen **(Norway)**
- Lenzerheide **(Switzerland)**
- Dresden and Ruhpolding **(Germany)**
- Lake Mountain Alpin Resort **(Australia)**

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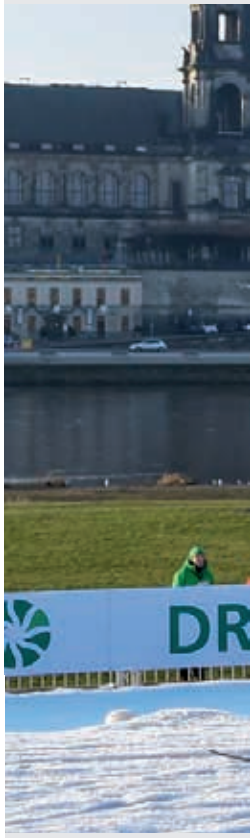

DRESDEN

To ensure that the FIS Cross-Country World Cup in Dresden (Germany) can be held as planned, the organisers have two mobile Snowfactory SF100 units at hand. The snowmaking machines were made available to the organisers by the German Ski Association (DSV) and do not require any complex construction work or installations. All they need to manufacture snow is a simple connection to power and water supplies. The necessary snow is generated by the Snowfactories at Dresden Airport from where it is transported to the competition site.

LENZERHEIDE

To ensure that the Biathlon Arena in Lenzerheide (Switzerland) opens on time for the 2018/2019 winter season beginning 1 November 2018, the organisers began producing snow with their Snowfactory SF210 in the last week of September. The Snowfactory was in operation for six weeks covering the biathlon and Nordic skiing trails with snow.

© Michael Schmidt

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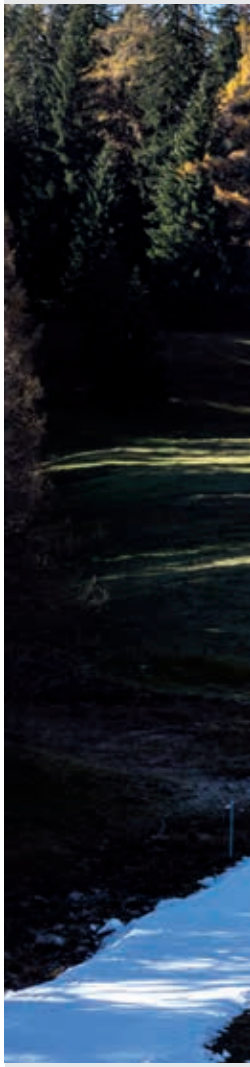
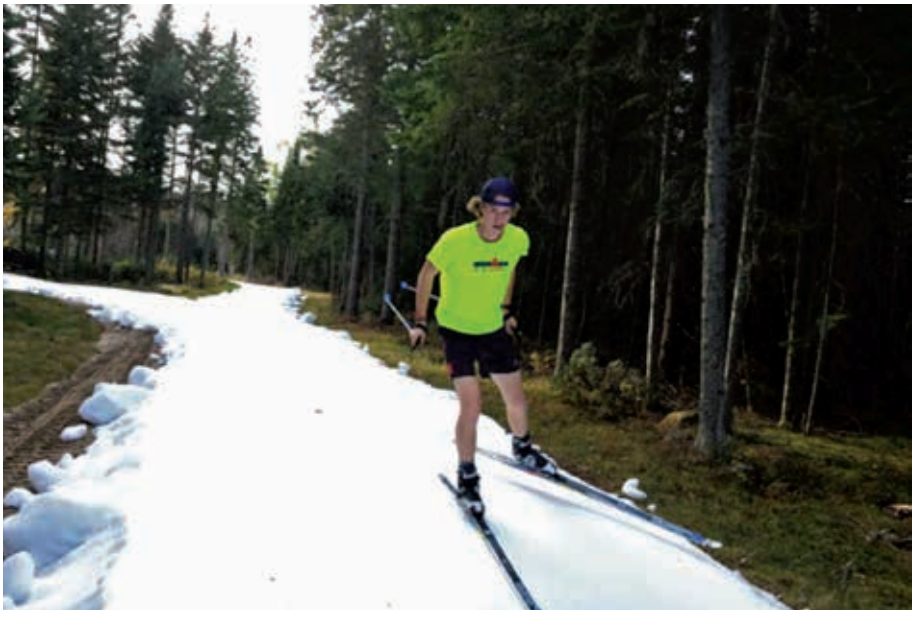
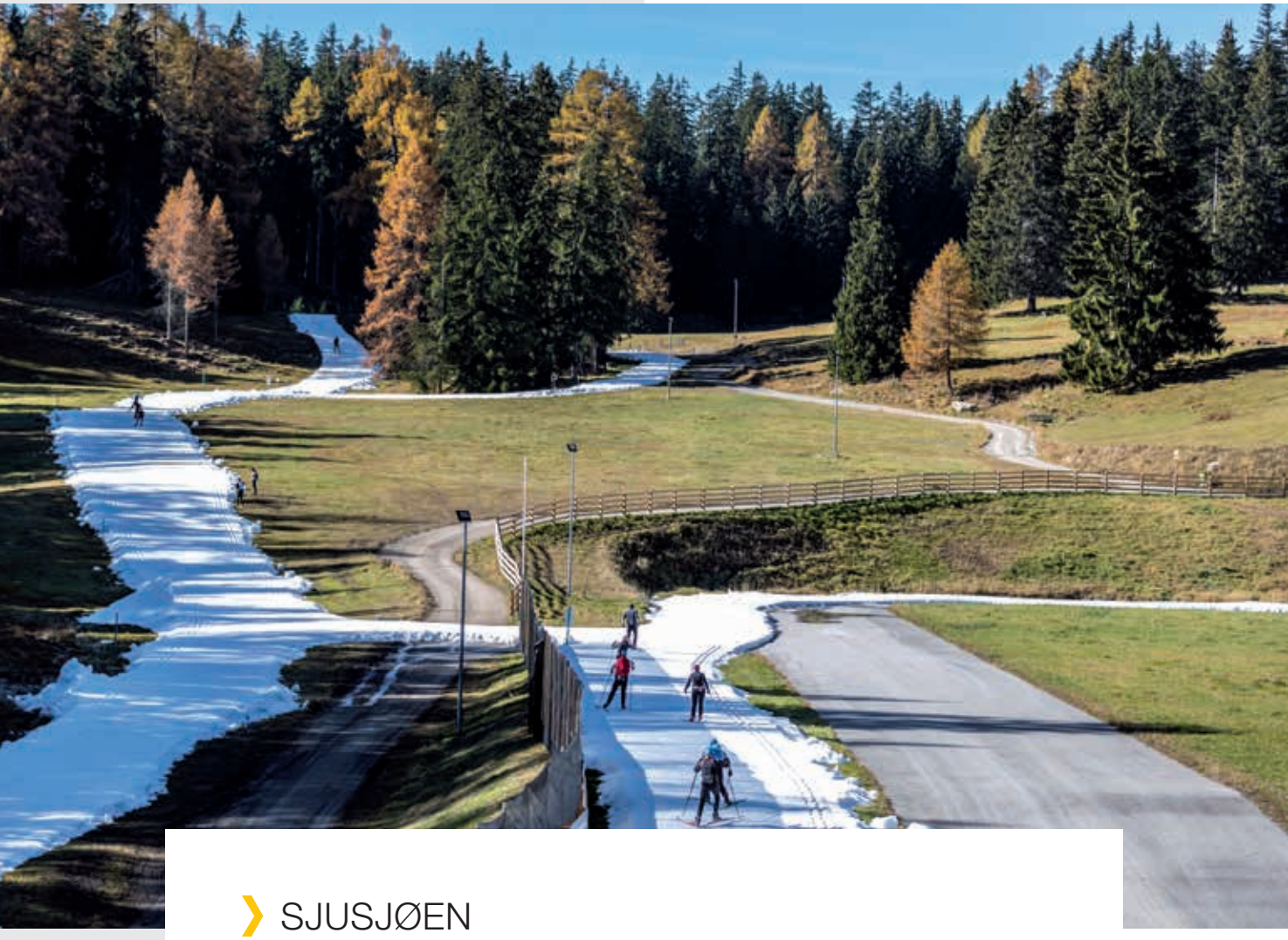


MT. VAN HOEVENBERG

Mount Van Hoevenberg, also known as “Van Ho”, is the location of a Nordic sports centre at Lake Placid, USA. The winter sports resort, which also hosted the Olympic Games in 1980, has been relying on the Snowfactory since the 2016/2017 winter season to make snow for the cross-country ski runs. In the previous winter, Mt. Van Hoevenberg had only been able to open for 37 days due to bad weather conditions. In the next season, a Snowfactory was used for the first time. Mt. Van Hoevenberg manager Kris Cheney Seymour reported happily in January 2017 that: “The Snowfactory guarantees the possibility of opening on the desired date and holding the races as planned: we can now be relied upon as a world-class venue. The Snowfactory has revolutionised everything.”





SJUSJØEN

The popular winter sports resort of Sjusjøen (Norway) is a mere 20 km from the Olympic town of Lillehammer. The resort operators decided to use a Snowfactory in the modern biathlon arena, above all because of the snow guarantee. Espen Vetsch, park manager of the Sjusjøen area, is delighted with the use of the innovative snow gun in combination with the ATASSplus control software: “The Snowfactory ran 24 hours a day without any problems. Thanks to the integration into ATASSplus, I was able to monitor the machine by remote control. It is very easy to operate, as it runs fully automatically.”

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APPLICATION AREA

SKI JUMPING

As with other important events, the Snowfactory also plays a special role in ski jumping events such as the FIS World Cup. It is used to prepare the out-run and is powerful enough to produce the required volumes of snow of approximately 4,000 m^3. Classic snow guns are often used in addition to the Snowfactory. But the use of a Snowfactory as a standalone snowmaker has also proven effective and successful.

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© SC-Willingen

The Snowfactory will supply the requisite snow at future Ski Jumping World Cup events in Germany, regardless of climatic conditions:

- Klingenthal **(Germany)**
- Willingen **(Germany)**
- Titisee-Neustadt **(Germany)**

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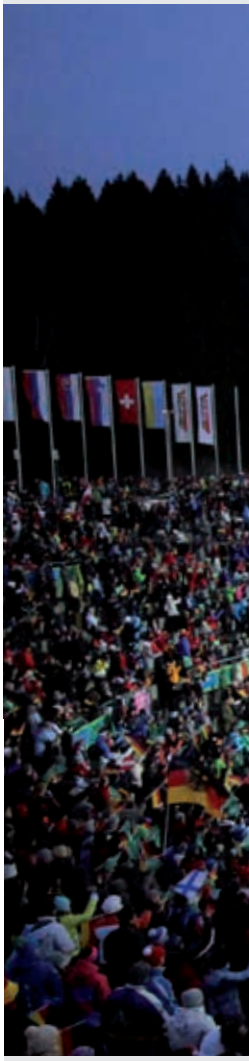

KLINGENTHAL

To guarantee that the Ski Jumping World Cup in Klingenthal (Germany) always runs smoothly, the organisers use Snowfactory units provided by the German Ski Association (DSV). The machines produce roughly 3,000 m^3 of snow for the competition held in the Vogtland Arena. For Walter Vogel of the DSV, the Snowfactory was the salvation of the Ski Jumping World Cup in 2015/2016: “Without the Snowfactory, the World Cup in Klingenthal would not have taken place. We are very happy with the decision to purchase these machines; they work perfectly and reliably. There is always a certain amount of tension or uncertainty whenever temperatures play up, particularly at events. The Snowfactory simply gives the organisers the reliability they need.”


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APPLICATION AREA

OTHER SPORTS EVENTS

In addition to the World Cup events in the areas of alpine skiing, ski jumping, biathlon and cross-country skiing, many other important events are also held on snow made by the Snowfactory. This is not only due to the need for snow reliability but also to the often difficult climatic conditions at some venues. Events and competitions do not necessarily always take place in a winter sports area. Cities and stadiums, for example, are also popular venues and attract many spectators. Snow production in these often lower-lying locations poses a particular challenge, for which the Snowfactory can prove the ideal solution.

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The following event organisers,

among others, rely on the Snowfactory:

- Red Bull Freestyle Event in Zürich **(Switzerland)**
- Big Air Freestyle Event at the Expo Area in Milan **(Italy)**
- Biathlon auf Schalke in Gelsenkirchen **(Germany)**
- FIS Snowboard Parallel Slalom World Cup in Winterberg **(Germany)**

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APPLICATION AREA

INDOOR

The Snowfactory can provide the snow required for indoor winter activities. By using a Snowfactory, the hall does not have to be cooled down to cold temperatures, which saves valuable energy. The Snowfactory produces snow at external temperatures of up to +35°C, allowing the creation of an indoor winter world with pleasantly comfortable temperatures of +15°C to +25°C. The innovative snow machine is therefore ideal for indoor snow parks, where up to 5,000 m^2 of snow playgrounds and small pistes are covered with snow for learners making their first attempts at skiing and sledging. Such indoor snow parks are often located in shopping centres, offering visitors spontaneous winter fun and their very first winter sports experiences, even without special winter equipment. The consistency of the snowflakes can be refined, if desired, to create an experience that resembles nature as closely as possible. The highlight of every indoor snow park is the simulation of falling snow: this optional Snowfactory feature guarantees an unforgettable snowfall experience for the visitors on an area of 30 m^2.

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For many indoor hall operators,
the Snowfactory is the ideal solution:

- Snow Town Jakarta Bekasi and Bintaro **(Indonesia)**
- Snow Town Saigon **(Vietnam)**
- Snow Town Bangkok **(Thailand)**
- Snow Town Shanghai **(China)**
- Snow Town Taipei **(Taiwan)**

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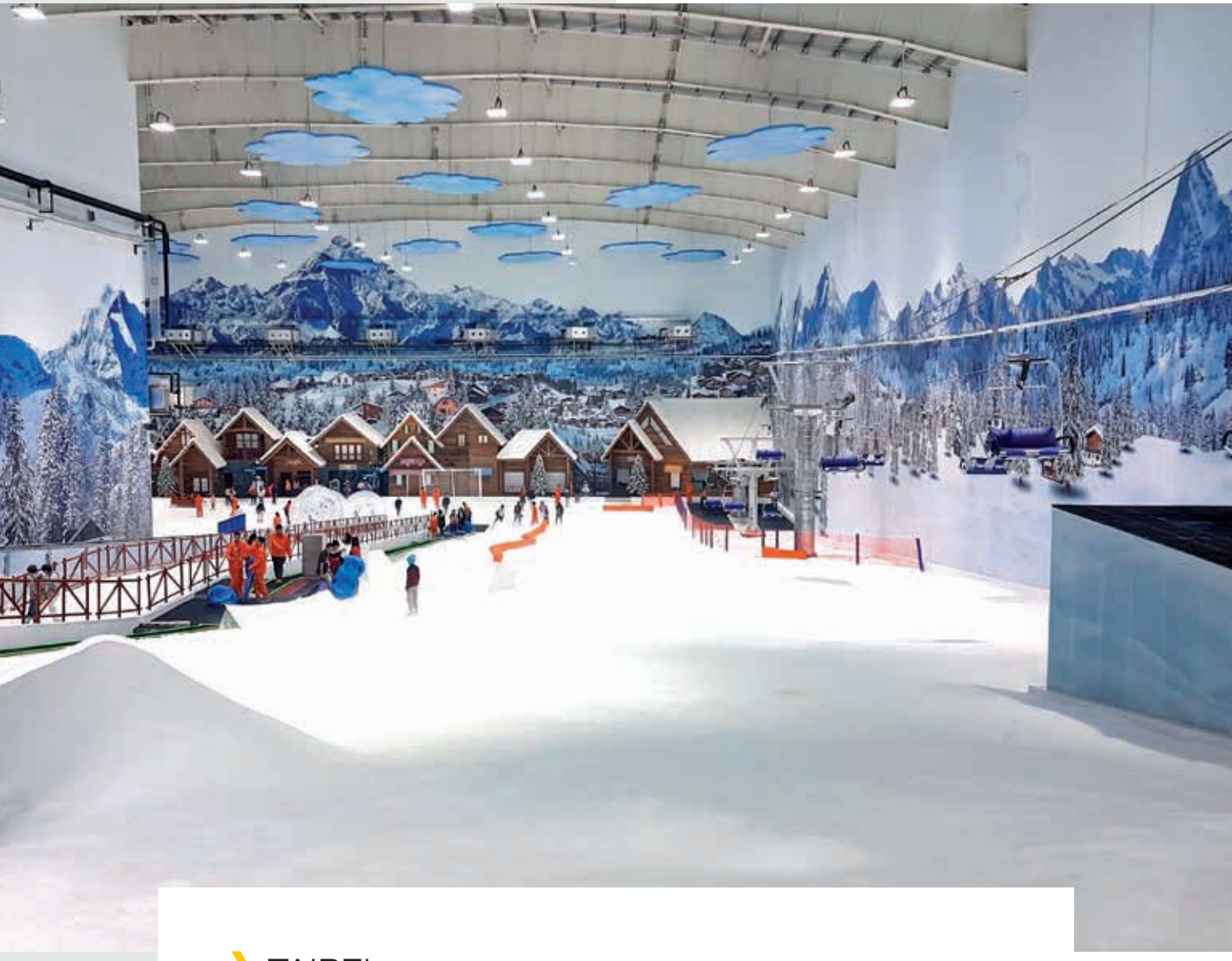
JAKARTA

In Bekasi (Indonesia), a suburb of the capital Jakarta, four Snowfactory SF100 Plus units were installed at a 4,000 m^2 indoor centre. The Trans Snow World is part of a large residential, business, shopping and entertainment complex. The attraction is open all year round and offers no end of fun in the snow playground area and on the ski slopes. To adapt the Snowfactory to the extremely warm climate conditions of the location and increase efficiency, a specifically customised model is used to produce snow at temperatures of up to 35°C.



TAIPEI

The Snowfactory with its excellent snowmaking results not only makes large indoor projects possible, but also small snow halls and playgrounds. For example, a Snowfactory SF100 Plus in Snow Town in the Mitsui Outlet Park in Taipei (Taiwan) guarantees the snow required for an area of some 1,000 m^2. It ensures heaps of snow fun in the playground area of the hall and on the short sled run, delighting young and old alike – and at pleasant room temperatures of around 18°C.

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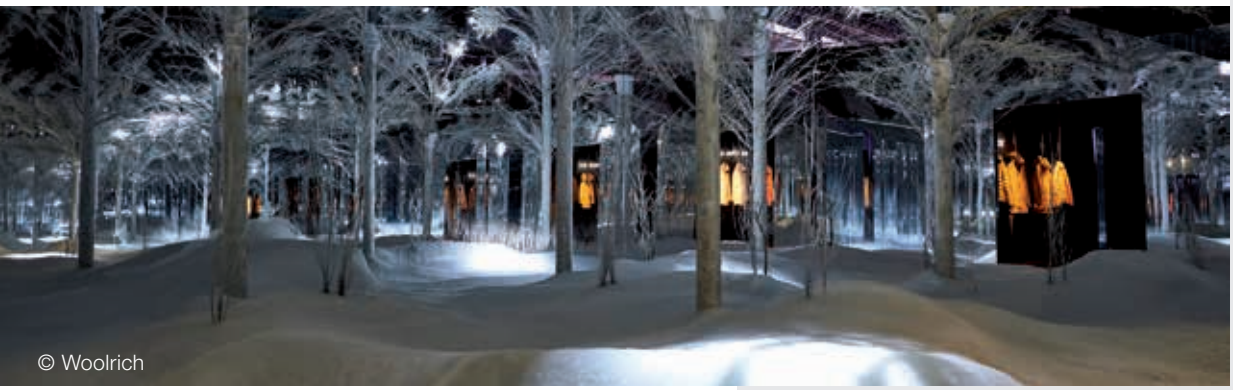
APPLICATION AREA

SPECIAL EVENTS

The Snowfactory inspires not only at sporting events. It also allows impressive, temporary installations for trade shows, exhibitions, fashion, art and cultural events.



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PITTI UOMO 2020

In January 2020, the Snowfactory conjured up winter magic at the 97th edition of the Pitti Uomo, Italy's most important menswear show. The fair attracts thousands of visitors from the international fashion industry every year. To present the new products in an appealing background, fashion company Woolrich decided to implement the theme world of a winter forest with real snow in the Dogana in Florence. The winter paradise was made possible by the innovative Snowfactory, which can guarantee snow production and simulated snowfall, even at comfortably pleasant temperatures. The snow for the winterscape in the hall was produced in just 24 hours. As large amounts of snow were spread within a short time period, the snow cover held up well and melted only very slowly.

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APPLICATION AREA

GLACIERS

The Snowfactory can be used during the summer months on the peaks of glaciers to provide snow fun and entertainment for guests. In summer ski resorts it can ensure that the area around the mountain stations of the ski lifts is also covered with snow. Snowfactory snow can also be used to fill cracks or renew or cover snow that has become soiled due to heavy visitor traffic. This can reduce snowmelt and counteract glacier shrinkage.

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TITLIS GLACIER

A Snowfactory SF100 was installed on the Titlis glacier in Engelberg (Switzerland) at an altitude of some 3,020 m above sea level. The special feature of this already exceptional project was not least how the snowmaker was transported: it was lifted to the glacier by cable car. To make this possible, the technology was fitted into two 20-foot containers instead of the usual single 40-foot container. Due to the reduced weight and size, it was possible to attach the individual parts to the bottom of the gondola and in this way transport them to the top of the mountain.

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SPECIFICATIONS

SF100 standard	
Electrical characteristics	
Nominal voltage	400 V
Nominal frequency	50 Hz
Power requirement	87 kW*
Installed power	140 kW
Relative power consumption	20.9 kWh/m³
Fabrication	
Container	1x 40' HC
Dimensional data	
Length Container A	12.2 m
Width Container B	2.5 m
Height Container H	2.9 m
Weights	
Weight	17,000 kg
Snow volume	
Production of snow	100 m³/d*
Production of snow	45 t/d*
Connections	
Water required [min.]	1 l/sec
Water connection [¾"]	20 DN
Water pressure [min./max.]	2 – 5 bar
Water inlet temperature	5 – 20°C
Snow supply	
Delivery height [max.]	20 m
Delivery distance [max.]	150 m
Connection [3"]	80 DN
Various	
Refrigerant	R717
System guide	ATASSplus

SF100 mobile	
Electrical characteristics	
Nominal voltage	400 V
Nominal frequency	50 Hz
Power requirement	130 kW*
Installed power	208 kW
Relative power consumption	31.2 kWh/m³
Fabrication	
Container	1x 40' HC
Dimensional data	
Length Container A	12.2 m
Width Container B	2.5 m
Height Container H	2.9 m
Weights	
Weight	17,000 kg
Snow volume	
Production of snow	100 m³/d*
Production of snow	45 t/d*
Connections	
Water required [min.]	1 l/sec
Water connection [¾"]	20 DN
Water pressure [min./max.]	2 – 5 bar
Water inlet temperature	5 – 20°C
Snow supply	
Delivery height [max.]	20 m
Delivery distance [max.]	150 m
Connection [3"]	80 DN
Various	
Refrigerant	R449a
System guide	ATASSplus

Data are subject to change depending on the type of plant and/or the country of installation (please always refer to the wiring diagrams).

* For water tempartures 5°C (41°F) and air temparature 15°C (59°F).
Snow production decreases and the energy required increases at warmer temperatures.

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	SF100 plus
Electrical characteristics	
Nominal voltage	400 V
Nominal frequency	50 Hz
Power requirement	210 kW*
Installed power	270 kW
Relative power consumption	48 kWh/m³
Fabrication	
Container	1x 40' HC
Dimensional data	
Length Container A	12.2 m
Width Container B	2.5 m
Höhe Container H	2.9 m
Length Cooling tower A	1.9 m
Width Cooling tower B	1.9 m
Height Cooling tower H	3.5 m
Weights	
Weight	19,500 kg
Snow volume	
Production of snow	92,4 m³/d*
Production of snow	42 t/d*
Connections	
Water required [min.]	1 l/sec
Water connection [¾"]	20 DN
Water pressure [min./max.]	2 – 5 bar
Water inlet temperature	5 – 45°C
Snow supply	
Delivery height [max.]	20 m
Delivery distance [max.]	150 m
Connection [3"]	80 DN
Various	
Refrigerant	R449a
System guide	ATASSplus

	SF210
Electrical characteristics	
Nominal voltage	400 V
Nominal frequency	50 Hz
Power requirement	184 kW*
Installed power	295 kW
Relative power consumption	21.2 kWh/m³
Fabrication	
Container + capacitor module	3x 40' HC
Dimensional data	
Length Container A	12.2 m
Width Container B	3.6 m
Height Container H	8.4 m
Weights	
Weight	35,600 kg
Snow volume	
Production of snow	207 m³/d*
Production of snow	94 t/d*
Connections	
Water required [min.]	2 l/sec
Water connection [1¼"]	32 DN
Water pressure [min./max.]	2 – 5 bar
Water inlet temperature	5 – 20°C
Snow supply	
Delivery height [max.]	50 m
Delivery distance [max.]	200 m
Connection [4"]	100 DN
Various	
Refrigerant	R717
System guide	ATASSplus

Data are subject to change depending on the type of plant and/or the country of installation (please always refer to the wiring diagrams).

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Snow production decreases and the energy required increases at warmer temperatures.


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