



SETTING THE STANDARDS SINCE WE STARTED 1990



**SETTING
THE STANDARDS**



IF ANYONE CAN, IT'S US.

INNOVATION, QUALITY AND SUSTAINABILITY COMBINED 6

When it comes to snowmaking at limit temperatures, we're the pros 7

REVOLUTIONARY PRODUCT DEVELOPMENT 8

THE SOFTWARE 10

Intelligent snowmaking: ATASSpro optimizes the use of resources 12

SNOWMASTER. Make tomorrow's decisions today 14

IO-Link. The intelligent machine room 16

INNER WORKINGS 18

Our innovation. optimized nozzles and nucleators 20

More efficient heat exchangers for compressor air 22

Oil-free compressors 23

Redefined ventilation technology 24

THE PRODUCTS 26

Everyone knows it. Everyone wants it. The TT Series 28

TR Series. Master snowmaking at limit temperatures 32

TL Series. A line of lances is revolutionizing snowmaking 36

Cooling Tower. The secret of our cooling tower 40

THE RESULT 42

Our Success Stories 44

ARE YOU QRIIOUS?

OUR STORY 46

SNOWMAKING IN THE FUTURE:

WHERE IS IT GOING? 48

**IF ANYONE CAN,
IT'S US.
INNOVATION,
QUALITY AND
SUSTAINABILITY
COMBINED.**





WHEN IT COMES TO SNOWMAKING AT LIMIT TEMPERATURES, WE'RE THE PROS.

Our products have been setting the standard in snowmaking for almost four decades. Our promise: **The highest quality, without compromise**, even in the most challenging conditions. We are focused on delivering **exceptional results, even in limit temperatures**.

We are the undisputed specialists in areas where snowmaking is a real challenge and conditions are becoming increasingly extreme. Snow windows are becoming ever smaller, which means we need to be able to efficiently make large amounts of snow even at marginal temperatures.

Our TechnoAlpin research & development team have spent years focusing their efforts on increasing snow output at limit temperatures. The result? Products that have been refined to the smallest details, enabling our customers to produce an impressive amount of snow - even in the most difficult weather conditions.

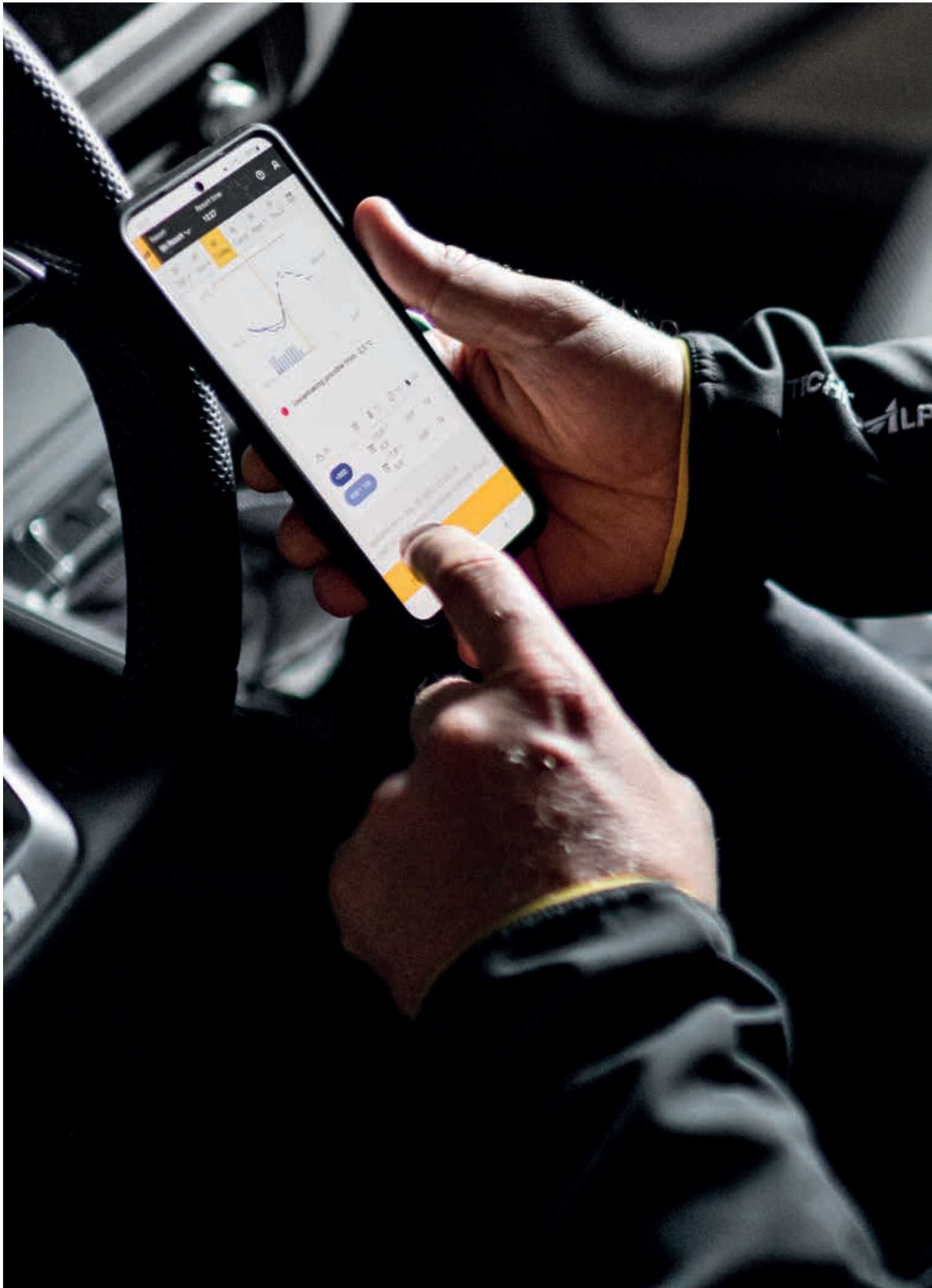
REVOLUTIONARY PRODUCT DEVELOPMENT.





SNOWMAKING, REINVENTED.

Our innovative product developments **increase snow output** at limit temperature ranges, **saving resources and shortening snowmaking times** – and are regularly redefining industry standards. This doesn't just underscore our position as market leaders, but also our drive for sustainable operations. We all need to make a choice: Do we stick with what we already have, or do we set ourselves the goal of creating something even better? Now let's take a look at our software, inner workings and end products.





THE SOFTWARE

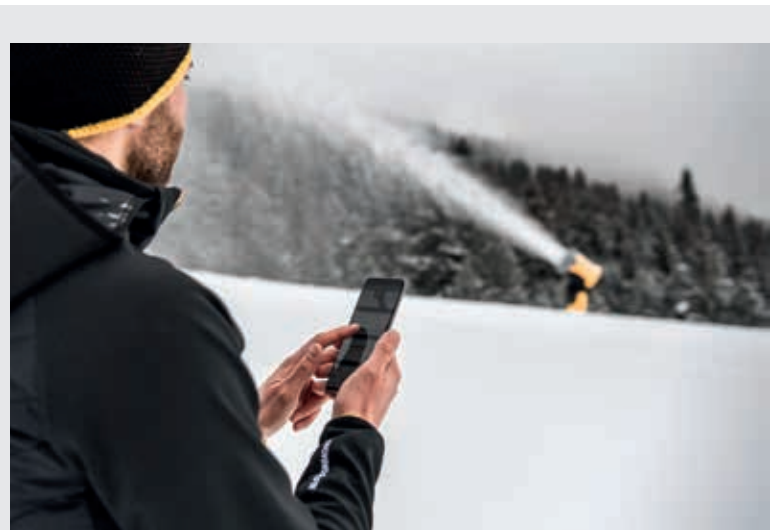
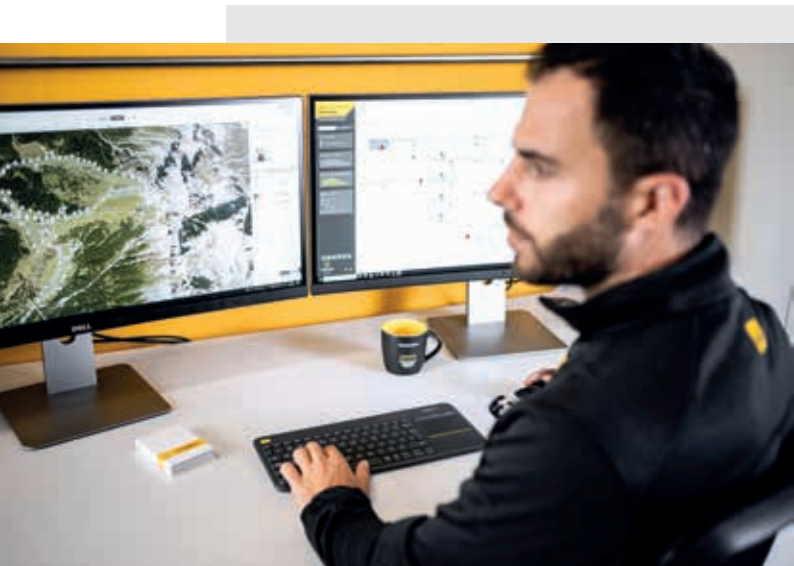
TECHNO  LPIN®

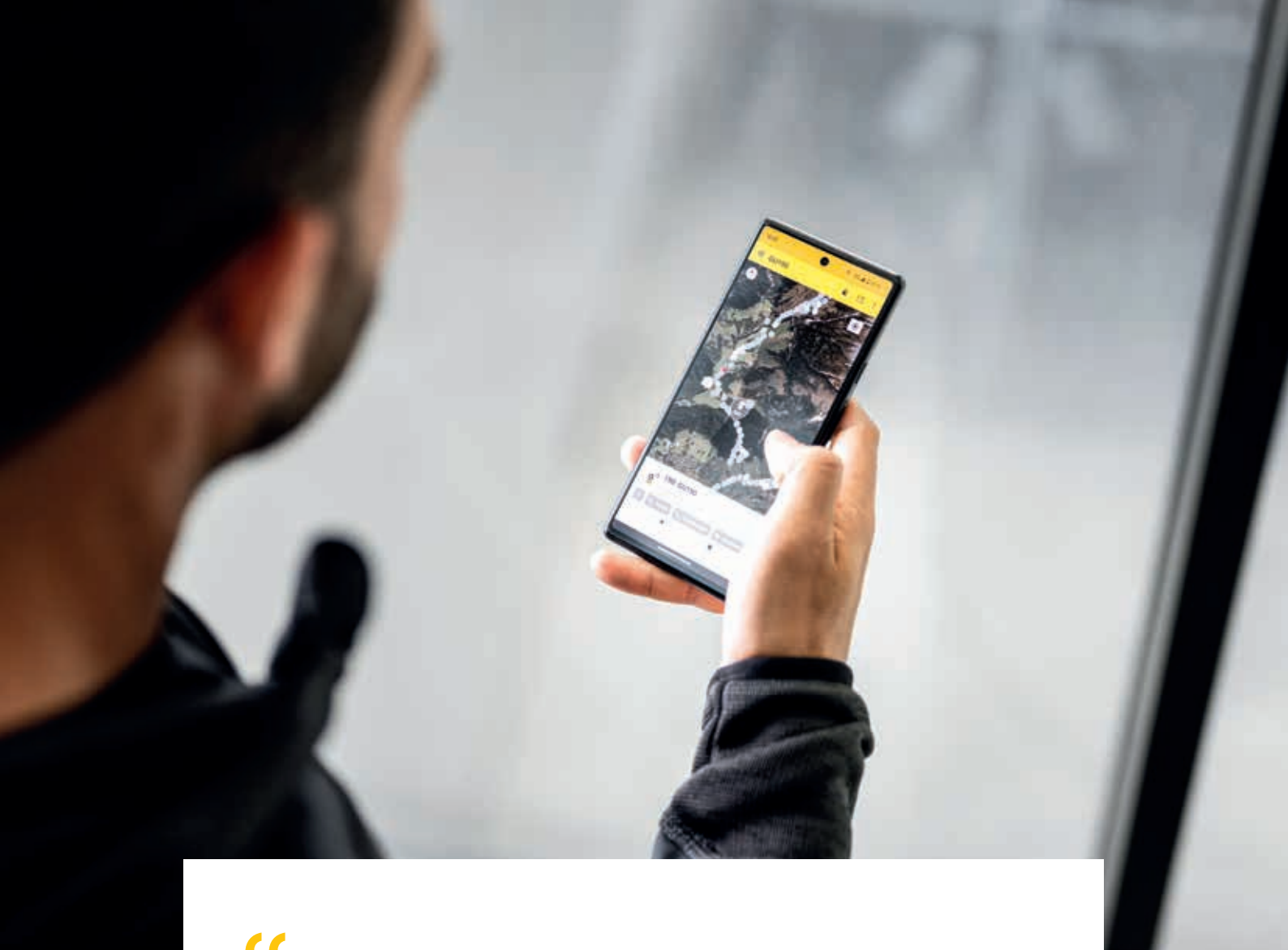
THE SOFTWARE

INTELLIGENT SNOWMAKING: **ATASSPRO** OPTIMIZES THE USE OF RESOURCES.

ATASSpro, TechnoAlpin's pioneering software, is revolutionizing snowmaking at limit temperature ranges. Thanks to our patented SnowManager, it enables you to **precisely plan snow quantities** for every area and slope. Which doesn't just save on costly snowmaking times, but also **uses resources more sparingly**, offering significant **savings in water and energy costs**. Snow quantities are automatically adjusted based on target and actual values as well as site-specific weather data to ensure optimum snowmaking efficiency.

ATASSpro also transfers data from snow-height measuring systems and displays how many cubic meters of snow still need to be produced per pit. This data is used **to determine the exact amount of snow needed**. So you don't produce one snowflake too many. The ATASSpro weather module offers reliable **14-day weather forecasts with pinpoint precision for each ski area**, so that you can quickly identify cold windows and optimize snowmaking conditions. Significant energy savings of more than 20% can be achieved even at temperatures just -2°C colder. ATASSpro – the intelligent solution for sustainable and efficient snowmaking.





“ The software perfectly adapts to today’s challenges in snowmaking thanks to its various options and variable configurations. After a short training period, it is easy to operate and users soon get to grips with the system.

Dani Meyer, Head of Snowmaking
Andermatt-Sedrun Sport AG (Switzerland)



“ Even colleagues who work less frequently with snowmaking software quickly got used to the new software thanks to the intuitive interface.

Daniel Lösch, Snowmaking manager
Planai-Hochwurzen Slopes (Austria)



THE SOFTWARE

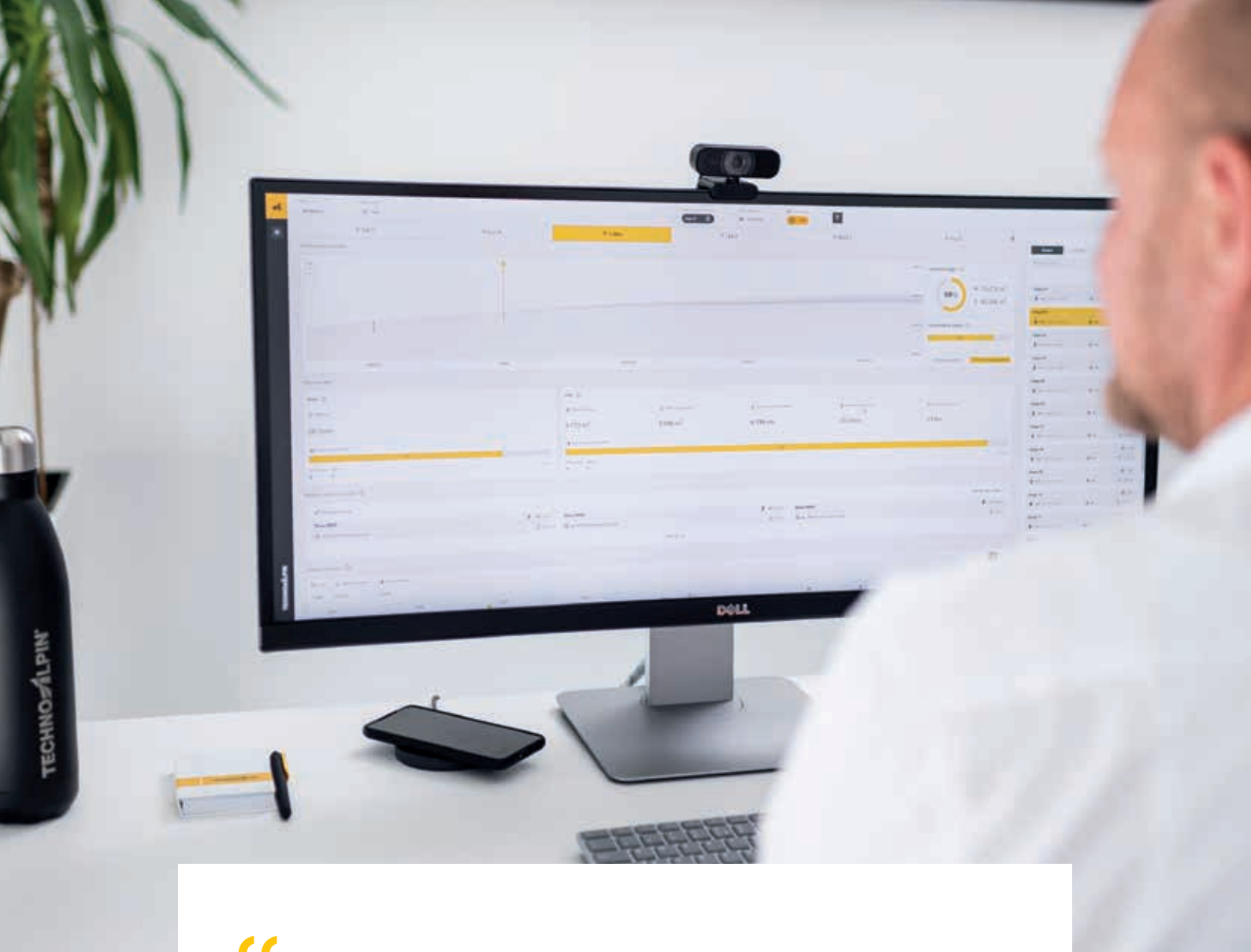


SNOWMASTER. MAKE TOMORROW'S DECISIONS TODAY.

SNOWMASTER marks the next step towards digitization for ski resorts. The software gives ski resort managers an unrestricted **overview of the planning and status of snowmaking processes**. Now accessible on all standard devices via the web browser. SNOWMASTER can also be accessed directly via the ATASSpro control system and is therefore available to the snow team at any time.

TechnoAlpin is **the first and only supplier** to provide ski resorts with forecasts for snow production by utilizing expertise gathered over many years and meticulous calculations. Taking detailed weather forecasts into account, **SNOWMASTER calculates the amount of snow that can be produced in the coming days and the amount of water required** to do so. This detailed information on future costs, resource requirements and temperatures holds the key to optimizing the ski resort planning processes.

SNOWMASTER accesses extensive data from ATASSpro, allowing for real-time communication regarding slope conditions and simplifying snow production management by **monitoring energy consumption**. The software offers a clear overview of snowmaking targets, provides a display of different ski areas with individual settings, and distributes all of the data according to altitude for optimized planning.



“ Snowmaking generates a huge amount of data and TechnoAlpin manages to use all this data to create relevant information. I can see everything that's needed at a glance, it's comprehensive and transparent.



Wolfgang Egger, Former Board Member of Gasteiner Bergbahnen AG (Austria)



“ SNOWMASTER simplifies communication between management and our snowmaking team a great deal. That enables us to work more efficiently.

Mark Winkler, CEO 3 Zinnen AG



THE SOFTWARE

IO-LINK. THE INTELLIGENT MACHINE ROOM.

Here at TechnoAlpin, we have been using the IO-Link communication system since 2019 to transfer all of our measured data digitally. This innovative technology doesn't just allow for more precise information and real-time error recognition, but also significantly reduces the need for sensors.

Intelligent sensors form the heart of the machine room 4.0 and deliver data to the IO-Link Master, which functions as an interface for the control system. Transferring measured data digitally **eliminates potential errors** and ensures that processes are seamless. The **digital machine room** doesn't just offer quicker and more comprehensive information, but it also allows for monitoring and maintenance to be carried out remotely. Because the digital sensors are so versatile, we need fewer components, which simultaneously **increases efficiency and reduces costs**.

Our philosophy is characterized by the spirit of innovation and the highest resource efficiency. The novel technology can be used in lots of different ways and works seamlessly with existing systems. IO-Link will help you to achieve increased **operational reliability** and realize **sustainable cost savings**. Welcome to the future of snowmaking – at TechnoAlpin, we set the standard.





EXPERT FEEDBACK

“ Swapping out the cables in the control cabinet is now a thing of the past. The IO-Link solution combined with pre-assembled cables means that all of the sensors and PV valves are “plug and play”. Wiring sensors and pneumatic valves has never been so easy!

Markus Pfeifer, Head of R&D Process Engineering
at TechnoAlpin







INNER WORKINGS

TECHNOALPIN®



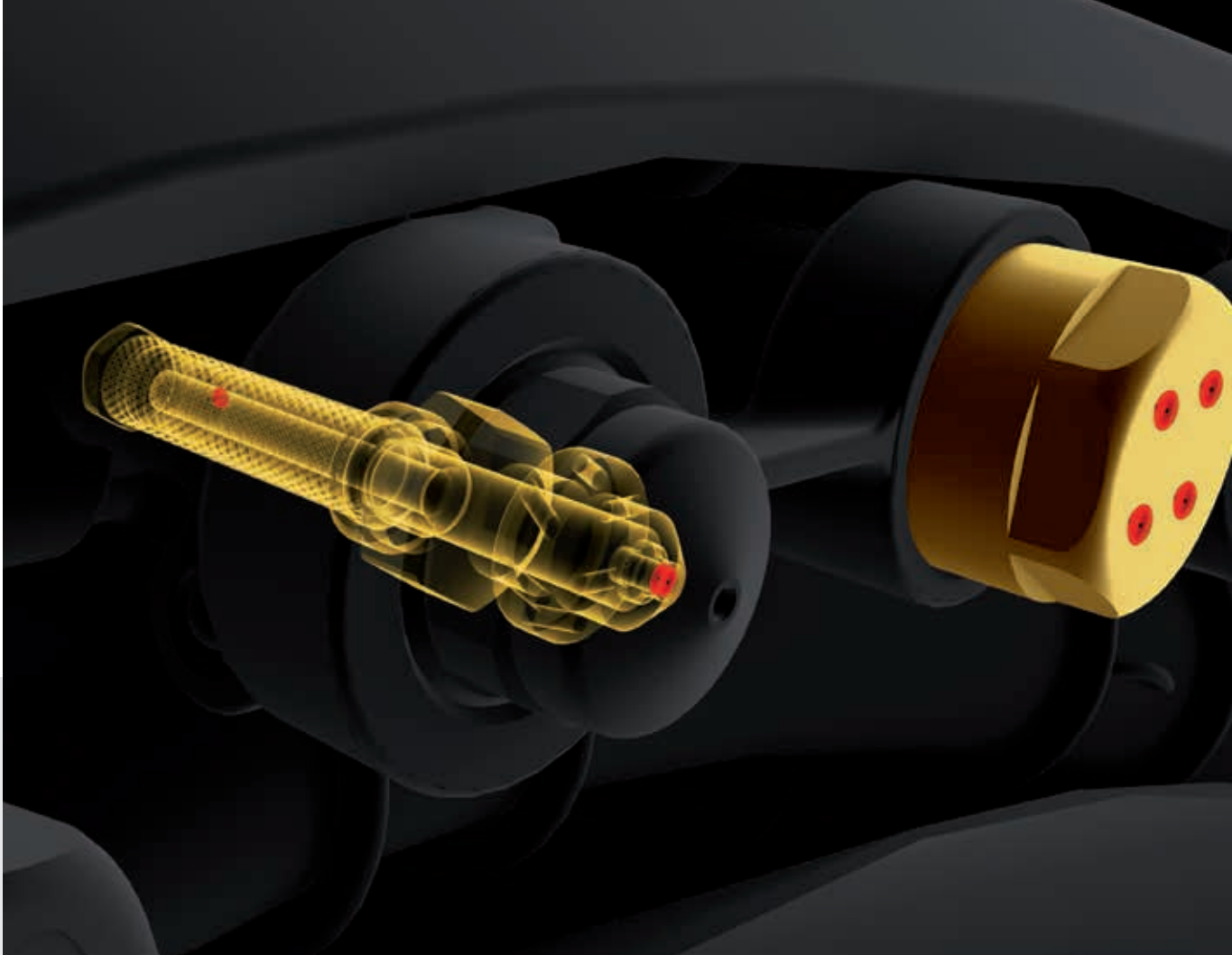
INNER WORKINGS

OUR INNOVATION. OPTIMIZED NOZZLES AND NUCLEATORS.

TechnoAlpin is constantly perfecting its nozzles and nucleators. Our nozzles and nucleators enable systems to produce snow in a wider temperature range.

The result: Snowmaking systems can already **work efficiently at limit temperatures** as they allow the snowmaking season to start sooner and can reduce dependence on extreme cold weather conditions.





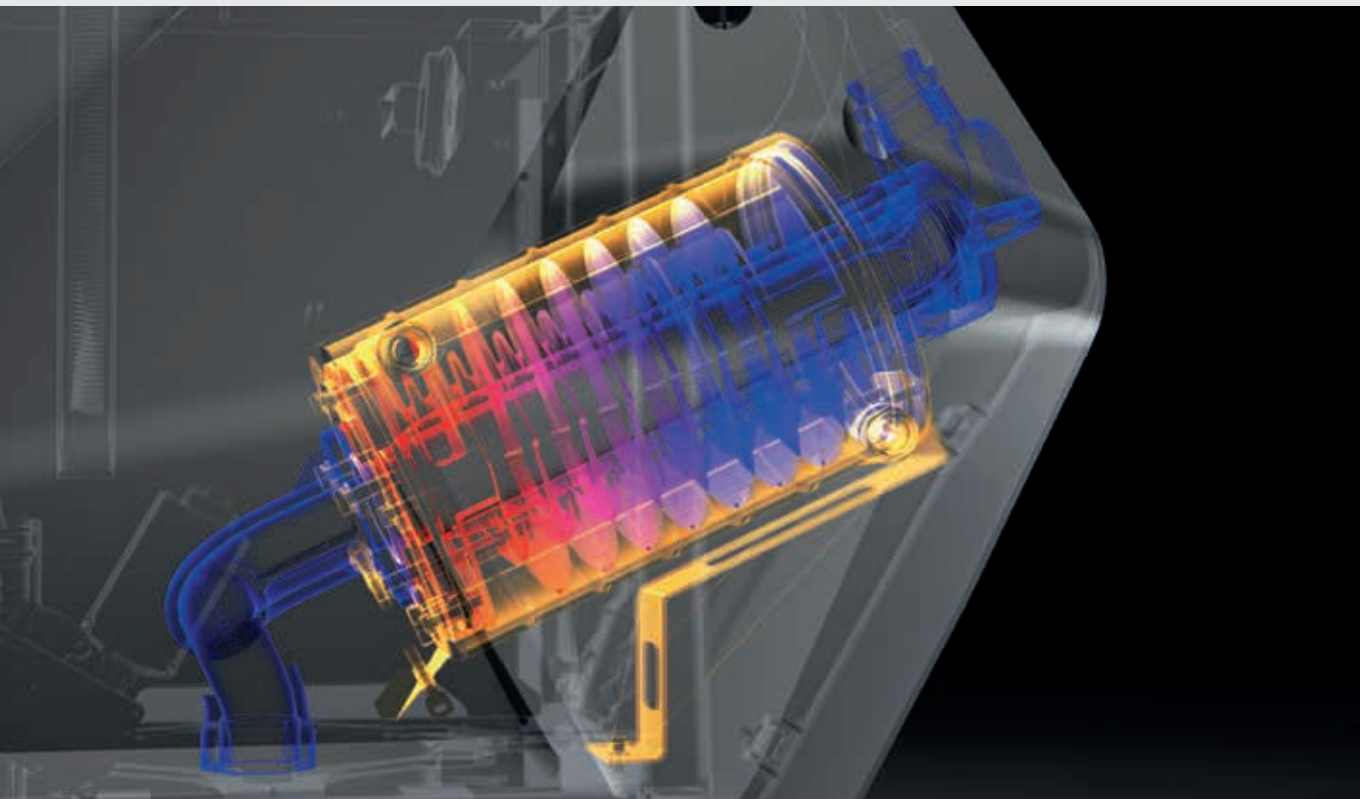
Different configurations of our nozzles and nucleators also allow you to **perfectly adapt to the prevalent temperature conditions**. For example, in ski areas that overwhelmingly see mild limit temperatures, we would use fixed nozzles with a low water throughput. This allows for snow production even at mild temperatures without affecting snow quality. Additional nozzles can be activated at lower temperatures to produce larger quantities of snow in the same high quality you've come to expect.

TechnoAlpin uses nozzles and nucleators made of high-quality materials, such as ceramic or ruby inserts, to ensure optimum atomization for decades. This leads to **notable efficiency and remarkable snow quality** with minimum maintenance. Our nozzles and nucleators are technological masterpieces that significantly increase the performance of snow guns even in the most challenging temperature conditions. Higher snow production doesn't just mean that available water is transformed into snow in the most effective way possible, it uses electricity more efficiently, too.

INNER WORKINGS

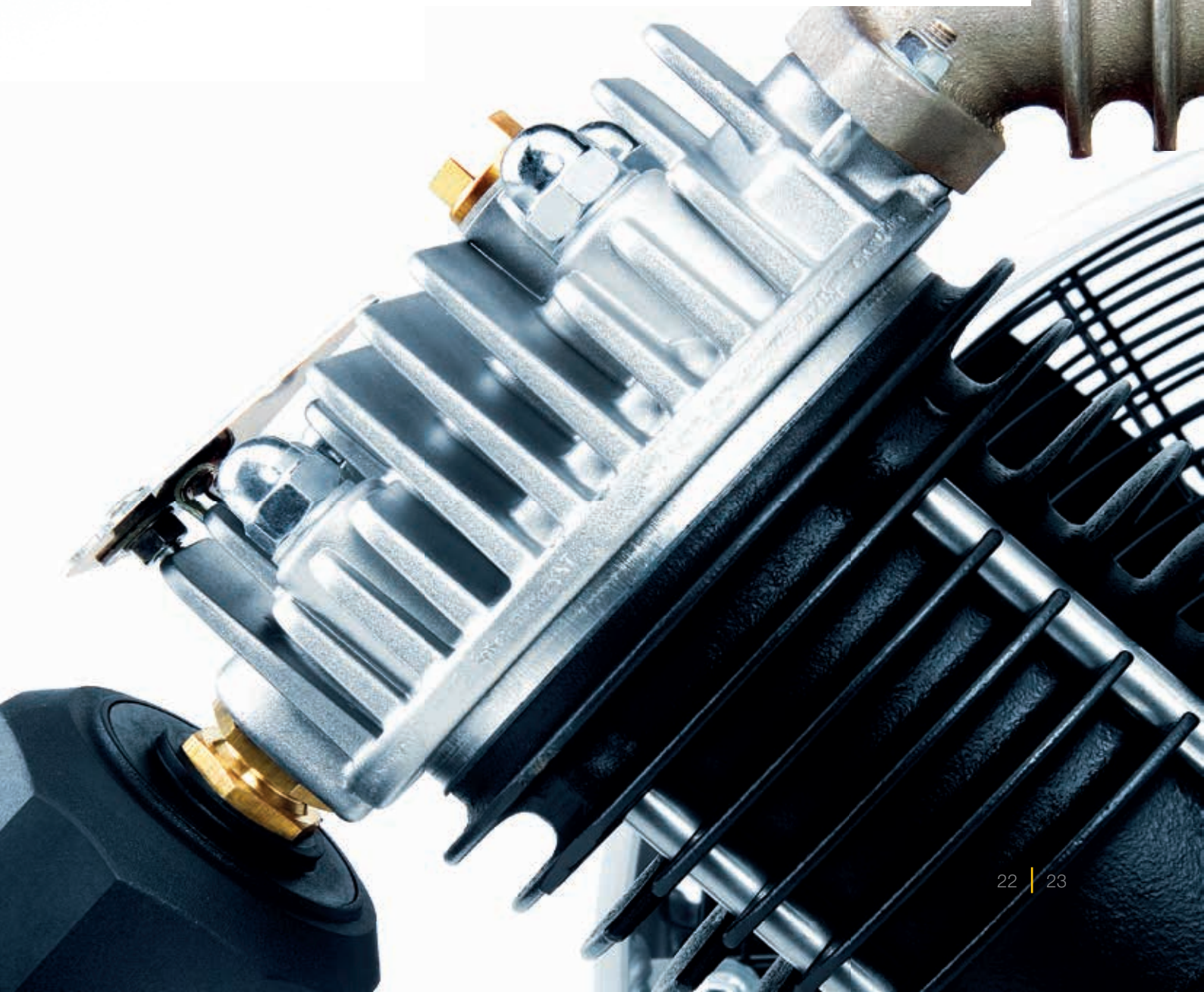
MORE EFFICIENT HEAT EXCHANGERS FOR COMPRESSOR AIR.

The temperature of compressed air has a significant influence on snowmaking performance at limit temperatures. Snow guns from our latest series also have a **local heat exchanger with a very large cooling surface**. The compressed air is routed around the cold snowmaking water and is cooled from approximately 100°C to 10°C – **without using any additional energy**. Additional heating in the water filter is not required because the waste heat from the compressed air is used. This **saves around 30% of the heating power**.

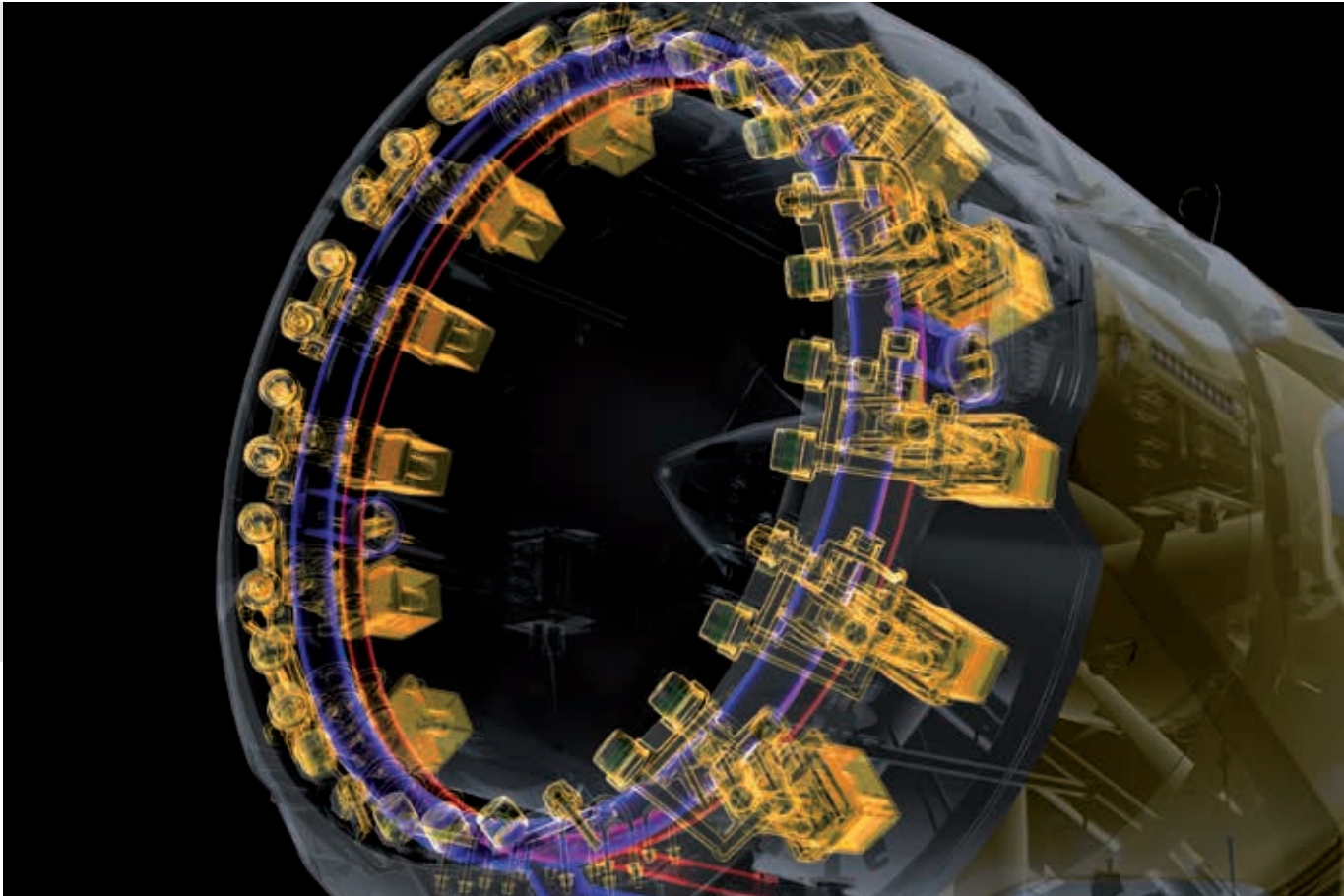


OIL-FREE COMPRESSORS.

100% oil-free: Our snow guns have been designed to be oil-free since the 90s. We have the ambitious goal of not allowing **any oil to be released into the environment** as a result of our technology. The low-maintenance compressors don't have any oil filters or water-oil separator cartridges, and in 2022 they alone saved more than 25,000 liters of oil and 9,000 water-oil separators.



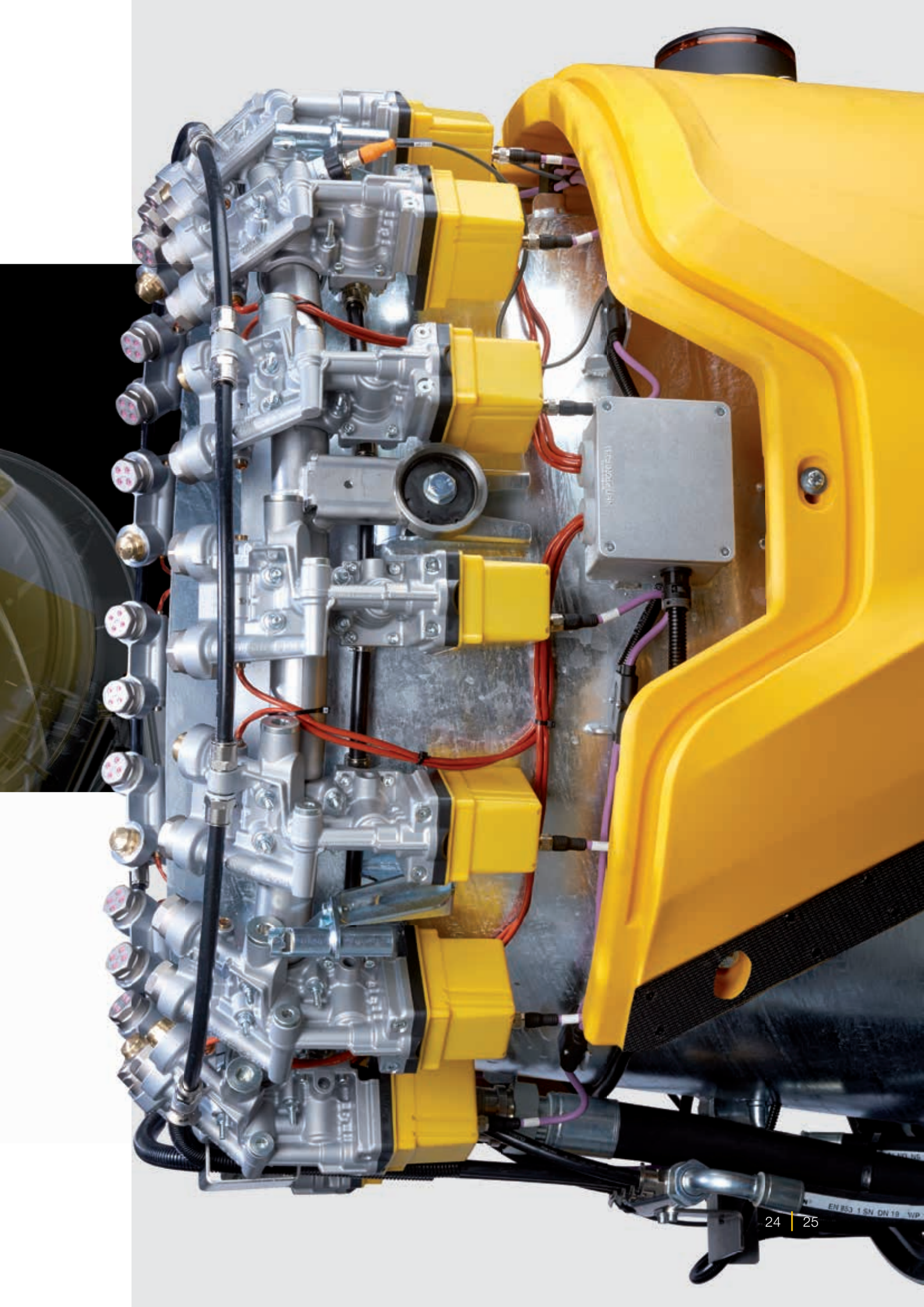
INNER WORKINGS



REDEFINED VENTILATION TECHNOLOGY.

TechnoAlpin's development team has created new nozzle valve technology, which is used on lances and fan guns to ensure that not a single drop of water is wasted. The **water in the nozzle valves** is no longer discharged downward during operation but rather **driven forward into the air jet and converted into snow.**

 **SETTING THE STANDARDS**







THE PRODUCTS

TECHNOALPIN®

THE PRODUCTS

EVERYONE KNOWS IT.
EVERYONE WANTS IT.
THE TT SERIES.

Unsurpassed snowmaking excellence. TechnoAlpin's TT series is the undisputed leader when it comes to snowmaking at limit temperatures.



TT series snow guns can be **individually adjusted** with optional touchscreen displays and meteo stations, as well as motorized swinging and height adjustment. The TT series is also characterized by **minimal noise emissions** and is sure to win you over thanks to its easily accessible components.

THE PRODUCTS

TT SERIES

But the TT series's most exceptional feature is its **tiltable tower**. As an individual tower snow producer, which is delivered pre-assembled, the TT range significantly reduces installation efforts on site. The innovative tiltable tower combines the advantages of a tower machine with the maintainability of a mobile fan-based snow producer. The snow producer's elevated position helps it to **achieve higher snow output** and a larger field of action. Made from sturdy steel, the tower consists of a fixed and a tiltable column, which means maintenance works can be done at ground level. The snow producer can be lowered mechanically with a lifting cylinder for maintenance work. And the numbers speak for themselves: Since launching in early 2021, more than 2,000 units have already been sold.





“ The TT10 is the best snow producer we have ever tested on our slopes. It’s easy to use, extremely powerful, and can withstand adverse conditions. We are convinced that we will be capitalizing on this technology in future and will install more TT10s on our slopes in Vrchlabi Kněžicky.



Jan Imlauf, Owner of Vrchlabi Kněžicky (Czechia)

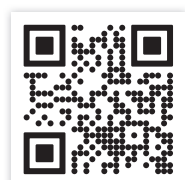
“ We felt like we had been transported to another world with the TT10’s snowmaking abilities in the marginal temperature range.



Bjorn Halvor Roalstad,
Managing Director of Gautefall Skisenter AS (Norway)



watch now
TT-Family



watch now
Pinzolo Installation

THE PRODUCTS

TR SERIES MASTER SNOWMAKING AT LIMIT TEMPERATURES.

Just like our TT series, the TR series offers the highest quality and impressive power. The TR10, which was launched on the market in early 2019, and the redesigned TR9 (launched in 2022) don't just share a similar appearance, but also a large number of technical components. The main difference lies in the size of the turbine. The TR9 has 6 nucleators and 18 four-jet nozzles, whereas the TR10 is equipped with 8 nucleators and 24 nozzles. The fact that they are largely standardized simplifies handling and reduces the need to stock spare parts.



TR9

TECHNOALPIN

THE PRODUCTS

TR SERIES

All of our machines are fitted with high-quality ruby inserts as standard - in both the nucleators and nozzles. The ruby inserts are characterized by their exceptional wear resistance and allow for the continuous production of high-quality snow. The ruby nozzles are inserted in the innovative nozzle valves, which are then mounted on the nozzle ring. This advanced system ensures that **every switchable nozzle valve is individually controlled**. When changing steps, the nozzle valves aren't just discharged using traditional central valve blocks, but also using compressed air, which is pushed forward into the turbine's snow stream. This efficiently **turns excess water into snow**, leading to greater efficiency.





“ We use powerful fan guns in the Sierra Nevada ski area so that we can make the most of shorter cold windows. **The TR machines increase energy efficiency enormously**, they are low-maintenance and offer high snow-making output even at limit temperatures – particularly on our wide and steep slopes where we need a lot of snow.



Andreas Bielser, Director of the Sierra Nevada ski area (Spain)



watch now
TR-Family

THE PRODUCTS



TL SERIES

A LINE OF LANCES IS REVOLUTIONIZING SNOWMAKING.

Our TL series stands for exceptional efficiency and precise regulation of snow production over a wide range of temperatures. The diverse range of lances offers made-to-measure nozzle configurations and nucleators, which enable you to find the perfect **snowmaking lance for every location**. The TL8, TL4 and TL2 lances from the TL series sustainably optimize snowmaking, regardless of the prevalent conditions – whether at marginal temperature ranges or in colder temperatures. The lances are also equipped as standard with high-quality components, including nucleators with ruby inserts and a new lightweight **universal pipe**. The simple and robust design allows the lance to be **adjusted horizontally and vertically without limits**.

THE PRODUCTS

TL SERIES

The double head lance, the TL4 Double, is a particular highlight – a single lance pipe can be fitted with two TL4 heads and a Smart Distributor. This unique configuration optimizes and **doubles snow production** while keeping costs the same. With its doubled performance, the TL4 Double is particularly well suited to sections of slopes that require a large quantity of snow.

As its name suggests, the Smart Distributor allows **flexible control of the nozzle rings**. It is located directly under the lance head and enables the valve to discharge efficiently when changing steps using compressed air. This ensures that every drop of water is transformed into snow, which reduces waste. The TL series therefore offers a guarantee of optimal snow production, at marginal temperatures and at lower temperatures.

THE BENEFITS OF THE TL SERIES AT A GLANCE:

- › More snow in all temperature ranges
- › Improved snow quality on slopes
- › Increased energy efficiency
- › Improved CO₂ balance
- › Resource-saving

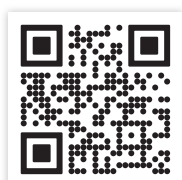




“ The TL lances produce snow of the highest quality, and I have been entirely satisfied with its output. **I would particularly highlight its performance at limit temperatures.** Its power and quality in these temperature ranges is really unparalleled. Thanks to the multiple settings on these lances, there is room for far more precision in the control of snow production, especially in, as I said, the limit temperature range. So the TL series would be my clear favorite.



Germano Alberti, Responsible for Technical Snowmaking
at Madonna di Campiglio (Italy)



watch now
TT vs TLX



THE PRODUCTS

COOLING TOWER

COOLING TOWER

THE SECRET OF OUR COOLING TOWER.

The temperature of the snowmaking water plays a key role when it comes to the efficiency of a snowmaking system. A water temperature just above freezing enables optimum operation and ensures higher snow output, especially in the limit temperature range. For every 4°C increase in water temperature, the wet bulb temperature must be 1°C cooler to produce snow. This means that it also takes longer to start producing snow. However, if the water is too warm, the system cannot take full advantage of the conditions – even cold temperature windows. The snow guns simply cannot convert the same amount of water into snow as they could with water at the optimum temperature. Therefore, the efficiency of the entire system goes down. Cold water temperatures can significantly reduce the time it takes for the system to produce snow.

TechnoAlpin cooling towers have a sophisticated operating principle in which the **water is cooled as it is distributed over a large area in a honeycomb system**. This honeycomb principle keeps **energy consumption low and output incredibly high**. The throughput ranges from 30 to 90 l/sec., depending on the model. A total of 16 nozzles ensure optimum water distribution. The increased water surface maximizes temperature exchange and increases cooling capacity.



THE RESULT

TechnoAlpin serves customers across the globe – from village lifts to the Olympic Games.

Our strengths? A customer-centric focus and perfection from planning to implementation.

We offer customized solutions for all requirements.



TECHNOALPIN®



CASTELROTTO VILLAGE LIFT

ITALY

- › The Castelrotto village lift is home to 6 TT9 snow guns, which cover a 480 meter long slope. The lift is part of Dolomiti Superski.



“ Our village lift project in Castelrotto was a complete success. Everything was flawless from start to finish. We feel as if we were treated like royalty because they were so professional.

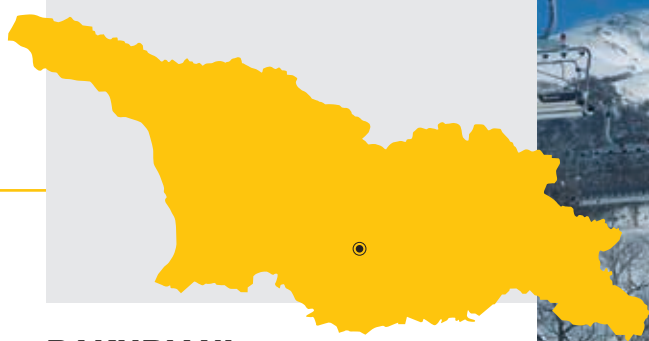
Helmut Sartori, President of the South Tyrol Association of Cable Car Operators



OLYMPIC GAMES (BEIJING)

CHINA

- › This ambitious project included equipping 4 different sites with a total of 350 snow guns and 7 machine rooms, which host 51 high pressure pumps. The impressive achievement was completed in under 3 years despite the challenges of the Covid-19 pandemic, and has an investment volume of 20 million Euro.



BAKURIANI **GEORGIA**

› TechnoAlpin helped Bakuriani reach an important milestone by developing a comprehensive snowmaking system. This major investment, with a total volume of 30 million Euro, includes 29 km of ductile iron cast pipe, 4 machine rooms and 221 snow guns, supported by the ATASSpro control system.

“ TechnoAlpin has achieved something incredible within half a year. Their tireless efforts and meticulous attention to detail made the Freestyle Ski and Snowboard World Championship 2023 in Bakuriani a huge success. We were impressed by their levels of perfection down to the smallest details, which meant we could host a first-class event.



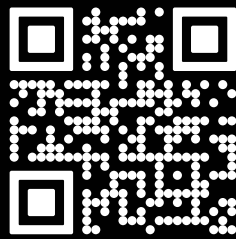
Irakli Burchuladze, Managing Director of M.T.A. (Mountain Trails Agency)



HOCHGURGL **AUSTRIA**

› Hochgurgl modernized their snowmaking systems in 2022 and 2023 with an investment volume of around 3.5 million Euro. The project involved developing 61 snow guns (50 TR10 Mobile, 11 TT10), 15 pits, 4 prepressure pumps, 4 high pressure pumps with a water output of 220 L/sec, and a 70,000 m³ reservoir. Hochgurgl hosted the FIS Ski World Cup for the first time in 2023.

ARE YOU QRIOUS? OUR STORY



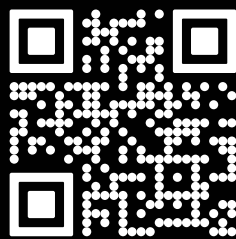


**WE ARE SETTING
THE STANDARDS.
SINCE WE STARTED.
SINCE 1990.**

TechnoAlpin, **market leader in the snowmaking industry**: We have reached this position through constant innovation and technological leadership. Our expertise in snowmaking at limit temperatures is unparalleled. Our unshakable commitment to quality and resource efficiency sets us apart, and we are extremely passionate about sustainability in our industry.

TechnoAlpin has shaped and developed the snowmaking industry like no other company. **Numerous product innovations from TechnoAlpin have set industry standards over the years.** From the very beginning, using resources in a sustainable way defined how we developed our products and solutions. At TechnoAlpin, we are proud of our pioneering work and engagement to create a **sustainable future in the world of snowmaking.**

SNOWMAKING IN THE FUTURE: WHERE IS IT GOING?



Download
Sustainability Report





**WE ARE THE PROS
AT WHAT WE DO.
AND WE WANT TO GET
EVEN BETTER.**

The snowmaking industry is on the verge of an important transformation. The intelligent, fully automated systems of tomorrow will be able to simplify decisions based on their precise weather predictions and multidimensional data. This will make snowmaking even simpler and more efficient, and optimize resource-saving. At the same time, these systems will be able to independently detect problems early on, minimizing critical downtime.

At TechnoAlpin, we are already working at full speed to actively shape the future of snowmaking and to continue setting the standards. This is why we are convinced that the secret isn't just to be found in AI, data or technology, but is actually in our passion for snow and the vision we share with our customers and partners. Welcome to the future of snowmaking, where innovation meets passion and snow is an experience for everyone.

Erich Gummerer, CEO of TechnoAlpin



**SETTING
THE STANDARDS**



**SETTING
THE STANDARDS**