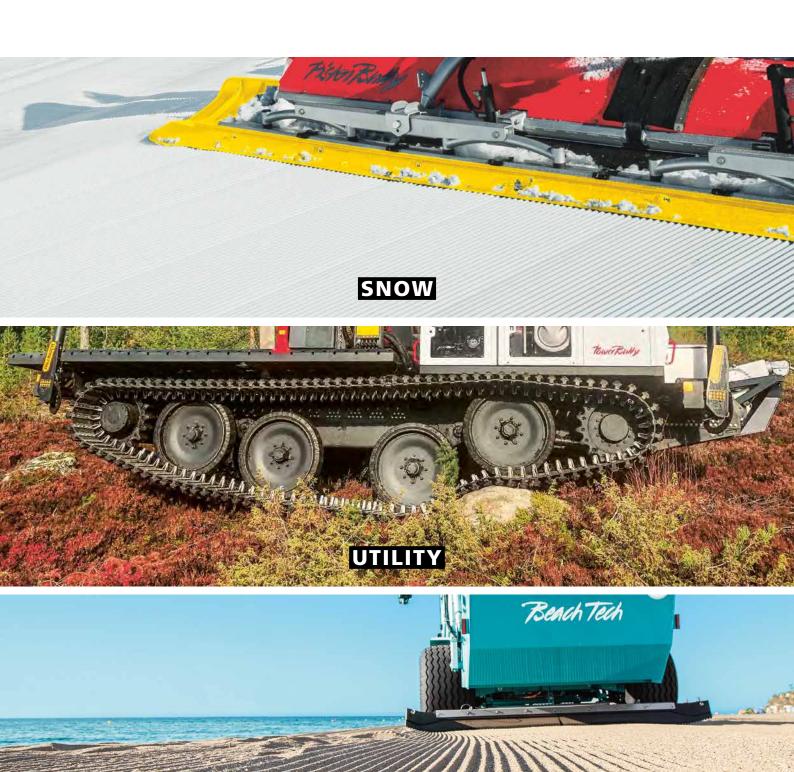


ISSUE 05 - FALL 2020



BEACH

Editorial



Jens Rottmair, Chief Executive Officer Kässbohrer Geländefahrzeug AG

Dear readers,

Since the last issue of our Kässbohrer Magazine, our world has become a different one. These days, we talk about life "before" and "after" corona. We all have to rethink, learn new things every day and adapt to ever-changing and new situations with an open mind. What makes me hopeful is that mountain railroads and aerial tramways were allowed to reopen in June and have been reporting a good start to the summer season so far. Nevertheless, we have yet to find out what the upcoming winter has in store for us. This is an area of great uncertainty that concerns all of us – the companies operating mountain railroads and aerial tramways, their employees, suppliers and patrons.

However, the changes over the past few months are presenting us with an opportunity – the opportunity to put our actions, focus and strategies to the test. Are we on the right digital track? Are we a sustainable company that is equipped for the future and provides suitable products and solutions to its customers?

Kässbohrer Geländefahrzeug AG is out and about with PistenBully in the mountains, with BeachTech on the seashore and with PowerBully in the most remote locations and ecotopes. We are aware of our responsibility – just as we were before Corona. In 2012, we introduced the first diesel electric snow groomer to the market, the PistenBully 600 E+. In 2018, we presented the new PistenBully 600, the cleanest and quietest groomer on the market. In 2019, we were able to present a cutting-edge concept study with the first electrically driven PistenBully. Our engineers never stop thinking about other drive concepts for the future. At our Laupheim location, we are helping the climate by producing 50 % of the electricity we need on our own and by continuing to reduce our CO₂ emissions. We are reducing our plastic waste. With BeachTech, we want to make a contribution to reducing the global plastic waste problem in the oceans and the seas.

But is that enough? No, it is not. In addition to the clean technology, solutions for efficient processes and resource-sparing working styles are essential to the success of our customers. For this reason, we are continuing our development of the PRO ACADEMY and SNOWsat. We are putting even more effort into taking our products in a digital and sustainable direction. We want to be a professional and reliable partner for our customers – not just today, but over the long term.

My colleagues and I want to work with you to find solutions for overcoming our challenges. I hope that all of us together can seize the opportunity to come out of this crisis even stronger than before. Let's get it done as a team!

Yours, Jens Rottmair

Afrair

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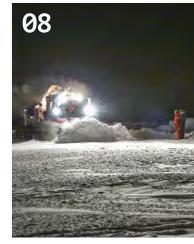
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01

CONTENTS



THE CLEANEST AND QUIETEST.

TOUR STATE OUR CLEAN TECHNOLOGY





Developing technologies and products that use resources more efficiently than anything we've ever But this is exactly what we have been doing – time and time again. The most recent example: our new PistenBully 600 E+

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Pisten Blady

pistenbully.com



Making the impossible possible -2

Lower emissions and less noise. The new PistenBully 600 E+ stands for pure sustainability

Plenty of power. Lower emissions and less noise. Minimum operating costs. The PistenBully 600 E+ takes what seems like an impossible combination and makes it a reality: It is both the cleanest and the quietest snow groomer on the market.

By offering this vehicle, Kässbohrer is taking one more step in the right direction. The PistenBully 600 E+ has been and remains a trailblazer on the way toward professional slope grooming that is both professional and sustainable. Featuring a durable, low-maintenance diesel-electric drive for enormous thrust – even in the low speed range. Featuring 20 % less fuel consumption for significant savings in the operating costs. Featuring 20 % less noise and a 20 % reduction in CO₂ emissions. A snow groomer for the ski area of tomorrow.

-20% lower CO₂ emissions +16% Flexible attachments • Hydraulic tiller drive opens up the option for greater variety in attachments. Large tank volume • Greater range Intuitive operating concept guarantees efficient OiTerminal, 4-axis Quietest and cleanest operation. joystick, armrest. engine in its class • Including diesel par-High-performance ticulate filter. It is the chassis first snow groomer that • High drive torque and meets the requirements chassis length quarantee

of the EU V emission

level.

maximum thrust and

climbing performance.

04

Note: The values refer to the

PistenBully 600 Polar reference vehicle

Meticulously tested: **PistenBully** TOUR STATE HE CHANGLOGY TECHNOLOGY THE CHANGLOGY THE CHANG

UPDATE Challenging tests for our electric model

The presentation of the PistenBully 100 E, This mainly includes component tests the first electrically driven snow groomer in the world, caused a sensation at the Interalpin 2019 trade show. And has given us tremendous inspiration! Admittedly, it has taken a few dents by now. But that is no wonder we've been running it through some fairly demanding tests since the trade show. And it has been worth it!

Safety first and last

First in the indoor skiing center and then on the glacier over the summer: Andreas Mayer, the lead test engineer at Kässbohrer, has been involved in the testing of this concept vehicle from the beginning. He drives the little green PistenBully uphill and downhill, over and over again. His objective is to collect abundant data so that he can further optimize the vehicle performance curve.

to guarantee the safety of the vehicle, such as the sprocket drive or, of course, the high-voltage battery.

It simply takes a lot of testing to gain

Various scenarios

a comprehensive picture. For this purpose, all conceivable applications are simulated. The machine is taken for runs with graduated motor speeds, driving speeds, tiller settings, etc. And all this is done under the widest possible array of conditions. This is why the PistenBully 100 E was taken back out into the snow for a few weeks to prove that it could handle various slope and snow conditions.

Results

There is no question that this machine belongs in the snow. It is outstandingly quiet. You have to get used to the fact that all you can hear is the whirr of the tracks – but that's something you'll enjoy getting used to! All the measurement data is currently being evaluated in depth so that some components may be fine-tuned even further and define their power requirements in the most advantageous way. And then we are looking forward to the feedback next winter!



Driver's cab as test center: Together with Lorenz Schöllenberger of Mattro Production GmbH, an expert on electric drives, Andreas Mayer (front) collects a wide variety of vehicle data.



It currently takes 6.5 hours to give the battery a full charge - enough for 2.5 to 3 hours of work.

PistenBully 100 E study data sheet

- **Battery** Usable energy content $= 126 \,\mathrm{kWh}$
- Charge time (SoC = State of Charge) 75 % SoC 100 % SoC approx. 6.5 hours
- **+ Propulsion drive** Power output up to 2 x 90 kW
- **•** Torque at the drive sprocket + 20 % compared to
- **•** Speed 0 – 27 km/h continuously variable
- **•** Calculated mean operating time 2.5 – 3 hours
- + CO₂ emission 100 % free of emissions 0 g/h

Zero emissions on the





Doing its part for the climate

PistenBully is part of the MOSAiC expedition

Two PistenBullys at the North Pole? Operating on pure ice floes? It's no surprise that the Polarstern (North Star) research ship is visible in the background – because the PistenBullys are an indispensable part of the MOSAiC expedition. For example, without our PistenBullys it would not have been possible to build the landing strip in the middle of the sea ice or to safeguard the logistics of exchanging 43 metric tons of expedition goods between the second and third expedition stage.

As technical engineers and operators, Thomas Sterbenz and his colleague Hannes Laubach handle the deployment and operation of two PistenBully 300 Polar machines as part of their responsibilities. They carry out all mechanical and electronic repairs on their own. A job with many facets that comes with particular challenges every day. This is nothing new for either of them: They have already spent a winter in Antarctica on Neumayer Station III as station engineers.

At this station, and at many other research stations in Antarctica, PistenBullys have been proving their worth for years in the rough conditions of expedition life.

You can find exciting and interesting glimpses into the expedition here:



https://follow.mosaic-expedition.org





Image of the landing strip taken by an airborne laser scanner (ALS) from above.

The landing strip had to meet several mandatory requirements: It had to be at least 600 meters long and 30 meters wide with a continuous ice thickness of one meter. And then there were also obstacles in the form of what are called ice hummocks. These are created when the gigantic ice floes collide and fragments are pressed upwards. "Sea ice is dynamic and continuously changing," explained Sterbenz. This is a completely different situation than, for example, on a glacier, where groomers do not face such obstacles. "We eliminated the uneven depressions using a specialized tiller that can be installed on the front of the PistenBully."



Not your typical working location: Thomas Sterbenz, Technician in the MOSAiC project, and his PistenBully 300 Polar.



You really never know when you might run into polar bears here. For safety, Thomas Sterbenz has a signal pistol in the driver's cab to chase bears away. The curious animals could come out of hiding when the engine of the PistenBully is turned off. A few have already explored the research park, which is monitored by specially trained bear watchers. So far, everything went well.

MOSAIC - Multidisciplinary Drifting Observatory for the Study of Arctic Climate

It is the largest arctic expedition of all time: For more than a year, the German research icebreaker Polarstern will drift through the Arctic Ocean, frozen into the ice. Scientists from 20 nations are exploring the Arctic over the course of a year. The natural phenomenon of ice drift is what provides them with this unique opportunity. The goal of the expedition is to better understand the influence of the Arctic on the global climate. Thus, the expedition will become a milestone for climate research. The data collected by it will be valuable for generations. An international fleet of icebreakers, helicopters, airplanes and two PistenBully 300 Polar machines provides the team with supplies on this extreme route.



OUR FOR MORE SUSTAINABILITY. STATEMENT.











What we are doing today will shape the world of tomorrow. This is why we at Kässbohrer are concerned with more than just providing high-quality and cost-effective products. The products must also feature outstanding sustainability. And one thing is for certain – sustainability means much more than saving fuel. It means continuous optimization of the use of resources – in all areas.

In this respect, products such as SNOWsat and the PRO ACADEMY are taking on increasingly important roles. For instance, with many solutions SNOWsat reduces snowmaking, providing an enormous reduction in energy consumption. Optimizes the workflows. Reduces the labor for maintenance and utilizes resources more efficiently here as well.

Or the PRO ACADEMY: It provides individual support in the qualification of the employees and thus makes slope grooming very sustainable. Optimizes the processes and structures. And thus fully utilizes the existing potential.

Clean technology, efficient processes, work methods that conserve resources, 15 year supply guarantee, short transport routes and optimized capacity utilization:

That's what keeps us busy – every day! This is our statement.

"In the future, people are going to start focusing more on the CO₂ footprint of their ski resorts. That is why we take action in the areas where the effects at the customer's facility are the most significant. By offering SNOWsat and the PRO ACADEMY, we provide concrete, efficient and sustainable solutions that use resources sparingly."



Jens Rottmair,

Chief Executive Officer

Kässbohrer Geländefahrzeug AG

Getting together in Oberstdorf, Germany

PistenBully is Official Supplier of the FIS Nordic World Ski Championships 2020/2021 – presented by storaenso

PistenBully provides ideal conditions for the competitions at the FIS Nordic World Ski Championships 2021 in Oberstdorf and turns this outstanding winter event into a showcase for sustainability thanks to its fleet, which is the cleanest on the market!

Sustainability in focus

High tech equipment from Kässbohrer ensures ideal conditions on the racetracks and around them:
PistenBully has been selected as a sustainable means of ensuring ideal conditions on the cross-country ski tracks and at the ski jumping hill.
The PistenBully fleet with the typical World Championships aesthetic will be put into operation starting in December 2020. One possible outstanding performer among them is the green PistenBully 600 E+.

But the "leader of the pack," as it were, is the PistenBully 100 cross-country track expert with a new and incredibly efficient tiller: Its top-notch performance ensures maximum area coverage during grooming. The refined finisher profile paves the way for the athletes to deliver top performances of their own. And all this while setting records in sustainability.

www.oberstdorf2021.com

Oberstdorf
in the far south
of Germany will be
playing host to the Nordic World Ski Championships
for the third time. The ski jump
events take place on the Schattenbergschanze, which is also a stop
on the annual Four Hills tournament. The
cross-country stadium in the Ried will become
the setting for the cross-country events. Altogether,
23 events will be held in the three Nordic sports –
cross-country skiing, ski jumping and Nordic combined.
And for the first time, women will compete for the individual
championship in the Nordic combined.

town of

OBERSTDORF ALLGÄU 2021

Unrivaled speed

The tiller of the PistenBully 100 operates faster, is more adaptable and creates an ideal slope pattern. It lets you work efficiently and conserve resources while taking into account the terrain and snow. Together with the new track tilling shaft and the right tracker units, it is the perfect tool to use for cross-country skiing.

Mechanical snow flap

for precise control of the snow quantity in the tiller box

Hvdraulically

for up to almost

working width

collapsible side finishers

5 meters of

Spring vibration damping shocksFor better ground adaptation and

stability

Track Setters / track profiler plates

Redesigned track tiller shaft

for optimal power consumption and simply more bite

Finisher support

for more uniform slopes and more compact surfaces that last longer



The German cross-country skier Florian Notz is looking forward to the world championships in his home country:

"This makes the world championships even more special to me: at home in front of my crowd – and together with my partner PistenBully. You really couldn't ask for better circumstances!"



7.5 mm less Smooth skating:

The finer the slope surface, the faster the skating. This is crucial, especially in professional competitions, as Notz confirms. Therefore, the pitch in the finisher profile is now smaller: 22.5 mm instead of the usual 30 mm.





NORWAY

building time for such a project, by the way, is about three weeks. Schneestern, together

within ten days.

with PistenBully, accomplished the impossible



Vacation atmosphere on the summit.

Encore! Encore!

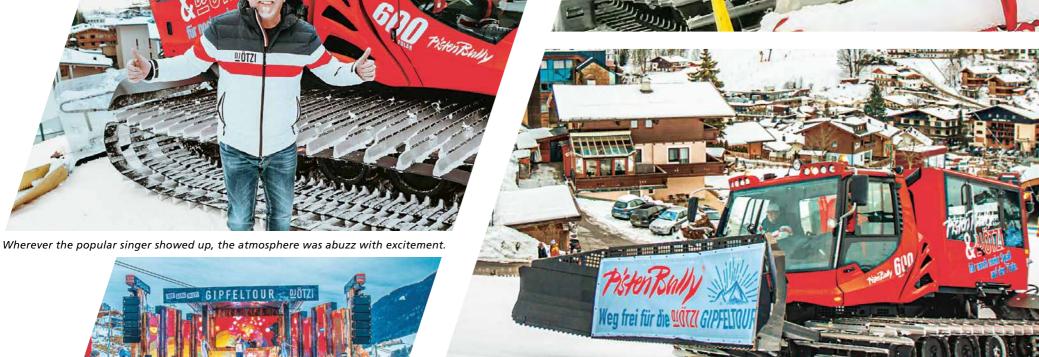
DJ Ötzi

This year, we took the excitement up a notch by launching the DJ Ötzi Gipfeltour ("summit tour"). And the DJ Ötzi PistenBully was part of the fun. The powerhouse was an important feature of the show and accompanied the DJ from the mountains on his concerts.



Ö3-Bully

The Ö3-PistenBully went on tour once again for the 2019-2020 ski season and provided sound to Austria's summits. It provided the perfect music for chilling out, dancing and partying and helped people of all ages enjoy the day of skiing. It did so from the first downhill run until "Après-Ski!" was announced.



"No matter what, I'm keeping you by my side because without you I can't ski well.

You guys sure do make a sick slope."

DJ Ötzi delivered these lines in heavy Austrian dialect after

appearance at the PistenBully employee party

It paved the way for a festive atmosphere.



Whether it is a winter

Mini-Skis. *
Maximum fun! *

Just latch them to your feet and let the fun begin! The younger children can make their first attempts at sliding in the snow and discover the world of winter sports, all while having a great deal of fun!



The PistenBully Mini-Skis have been specifically developed by us for "first contact" with the world of winter sports. Schools and sports clubs in particular can use the Miki-Skis to actively familiarize the kids with the fascinating world of snow.

Tested by children

Italy or Austria. Children have tested the Mini-Skis in all sorts of ways at several national and even international events. They've made their way past slalom poles, though winding routes and even over the occasional little jumping hill. The test result: Pure fun.

New options for the cold season

The bell rings. Recess! It's finally time to get out of the classroom. The Mini-Skis are ready for use even with just a bit of snow. And they can be used during recess or as part of the regular physical education class. The Mini-Skis provide elementary schools and sports clubs with new opportunities for making sure that kids can stay active even during the winter. Fun is included, of course. Additionally, schools and sports clubs benefit from our special terms and conditions.





Facts, cata, figures

500

170 SNOWsat customers.

Fact 03: More than 24,000 vehicles produced

Commercial agencies

100

Service availability in over 100 countries worldwide

Like a Swiss army knife

It does not matter what tasks need to be done – with SNOWsat, the right solution is only one click away. Working with SNOWsat means improving every day and shaping the future successfully.

Innovative. Future-proof. Reliable. There are many adjectives that could be used to describe the digital SNOWsat solutions.

But what really counts is the fact that ski areas that rely on SNOWsat have the advantage of slope and fleet management that is sustainable and conserves resources, not to mention efficient communication, cost transparency and maximum planning reliability. This is beneficial to both the environment and the entire team.







SNOWsat Maintain is great!

What customers say about SNOWsat Maintain

"I use SNOWsat Maintain to manage all tasks that are carried out on our snow groomers. I create maintenance schedules and individual service logs. Later on, I also want to manage our agricultural and construction machinery using SNOWsat Maintain. The initial online training course was helpful for us to learn how to operate the system. As the next step, I want to manage the warehouse inventory using SNOWsat Maintain and create evaluations and comparisons for various machines to cut costs."

Erwin Feichter, Head of Workshop Alta Badia, Italy "In SNOWsat Maintain, it only takes a few clicks for me to see what needs to be done or what has been done already. The cost overview can also be viewed quickly. The app makes the reporting of pending repairs and maintenance easier for me and the operators. Once we integrated our 10 PistenBullys on the Jakobshorn into the system, the system was very easy to operate. My next goal: inventory management with SNOWsat Maintain."

Jürg Fäh ("Frigo"), Head of Workshop Davos Klosters Bergbahnen AG, Switzerland

"SNOWsat Maintain assists us in our daily work in the shop. Mechanics and operators can quickly exchange information using the app. We thus see in real time which equipment is in operating condition and where repairs are pending. SNOWsat Maintain encompasses a lot. Together with the other SNOWsat solutions, SNOWsat Maintain supplies all important information on the entire fleet!"

Justin Magner, Head of Workshop Squaw Valley, USA "This complete solution for managing vehicles, inventories and more offers just the right foundation for our workshop and is something we have been in search of for a long time. Now all the vehicle maintenance and inventory management are handled through SNOWsat Maintain. After a few weeks, we have already gotten used to working with SNOWsat Maintain at the computer and using the smartphone app very well, and we love working with it."

Alois Steidl & Philipp Brandstetter, Leoganger Bergbahnen, Austria

"Our team uses SNOWsat Maintain for daily reporting. The mechanics can directly view and manage operating hours, service intervals and pending maintenance in the workshop. Even before the shift begins, the operations manager and slope manager see the status of vehicles and equipments displayed on the smartphone or the computer. During the current season we have continued to increase our use of SNOWsat Maintain, and we are looking forward to ordering spare parts and monitoring our inventory with SNOWsat Maintain as well!"

Drew Bray, Head of Workshop Sierra at Tahoe, USA



SNOWsat for your pocket. The SNOWsat app.

With the SNOWsat app, important data is always within reach

In the SNOWsat app, you can make notes about tasks or peculiarities directly while on the go. The app synchronizes the entered data with the system in real time. The data can then be called up, further processed and evaluated in the office or in the workshop. Whiteboards full of smudges and pockets full of paper slips with notes – with the SNOWsat App, these are things of the past! With the aid of the SNOWsat app, the entire team has access to the information. Thus data can be shared independently of the location and supplemented with images, comments and tasks, for instance. Consequently, everyone has permanent access to the information required.

sn_{Owsat}

MAX MUSTERMANN

Processing checklists

• Checking user-defined equipment at the beginning and end of the shift to assess their status directly in the system

Display of the equipment status

 Higher availability of vehicles and equipment through real-time display of the equipment status

Assessing operating fluids

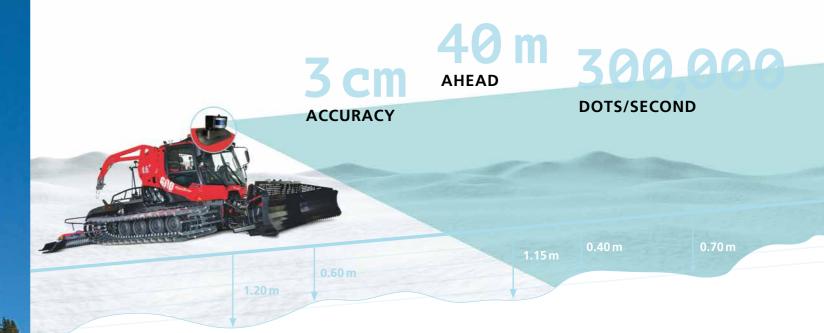
 Documenting fuel, DEF/AdBlue and oil use directly so that they can be evaluated in the office together with the operating hours data

Task management

 Creating and editing tasks and marking them as done while on the go

World first!

A new era in the area of snow depth measurement is beginning with SNOWsat LiDAR



Knowing what is ahead of you!

SNOWsat LiDAR is the first system in the world that measures the snow depth not only beneath the PistenBully but even up to 40 meters ahead of the front blade in real time. This is possible thanks to state-of-the-art laser technology. A laser scans the terrain during operation continuously at up to 300,000 dots per second.

In the display screen, the operator views a graphic real-time display of the snow depth, which even extends beyond the vehicle width. In this way, snow reserves located outside the groomed slope, for instance, can be detected early.

The operator can take the snow exactly to the spots where it is needed – without extra driving distance and without planning ahead. Slope grooming is more efficient than ever thanks to SNOWsat LiDAR!



Digital in Courchevel Courchevel Courchevel

SNOWsat ToDo digitalizes slope grooming in Courchevel, France. Romain Hazucka (RH), ski area manager, explains in the interview how SNOWsat ToDo optimizes task management and revolutionizes daily work.











Whether in the office or on the slope – SNOWsat ToDo assists the team in Courchevel in all areas.

Kässbohrer Magazine (KM):

Why did you decide to implement SNOWsat ToDo?

RH: Our previous task management was very unclear. We work in two shifts. For preparing the slope grooming and planning the tasks, many printed documents and handwritten notes were created for the operators. SNOWsat ToDo digitalizes the time-consuming documentation and coordination completely. Every evening we can enter, edit and manage the wide variety of tasks. In our case, there are sometimes up to 140 tasks. Communication is now fast, efficient and error-free.

KM: How has SNOWsat ToDo changed your everyday work mode?

RH: In the evening, we adjust our planning according to the weather conditions and the work from the previous night. SNOWsat ToDo lets us combine the grooming plans with the snow depth maps from the last three days. Thus we see recent changes on and next to the slope and can adapt our tasks and plans to what is necessary. As a result, slope grooming is even more efficient and more resources are conserved.

KM: How do you use SNOWsat ToDo for the communication in your team?

RH: The slope manager creates the plan for slope grooming. He uses SNOWsat ToDo to assign certain tasks to each operator. Then the operator sees these on the vehicle display and can take care of them right on the slope. In addition, they can add comments or notices for the next shift or the next day. Before the shift begins, the team manager of the second shift sees what has been completed and which tasks still have to be done. This lets the manager quickly adapt the grooming plan. A huge advantage thanks to SNOWsat ToDo, we can enter tasks at the computer even after the snow groomers have left for the ski slopes.

KM: What is your verdict on SNOWsat ToDo?

RH: We are saving a lot of time thanks to SNOWsat ToDo! The digital solution is highly convenient, reliable and efficient. The operators especially appreciate this new style of work greatly. In combination with the information from SNOWsat ToDo, they can make use of their specialist knowledge and experience even more efficiently.



Easy, precise, digital

Managing GIS data with the SNOWsat GIS Data Manager



New data points are directly recorded by the vehicle system and automatically integrated into the GIS.

Whether slope grooming, snowmaking or management is the issue – the SNOWsat GIS Data Manager is an indispensable tool for the entire team. Geospatial data can be managed and updated easily in this software. The result is a perfect, comprehensive map of the ski area that everyone can work with.

It has never been so easy: Adapting and managing GIS data

The geographic information system (GIS for short) of a ski area includes all spatial data relevant to everyday work: profile of the terrain, slope edges, positions of the snow guns, areas to be covered with machine-made snow, anchor points for winchcats, roads, buildings and much more. This GIS data serves as the basis for all business cases (construction activity, creation of snowmaking and grooming plans or statistics) in the ski area. In the past, a surveying company had to be commissioned to manage this data. Thanks to the GIS Data Manager, a new digital SNOWsat solution, the employees in the ski area are now able to update this data on their own.

How the SNOWsat GIS Data Manager works

The SNOWsat GIS Data Manager is a solution for managing the GIS data in the ski area. Data points are either added manually or recorded using the snow groomer. Vehicles equipped with SNOWsat are capable of recording anchor points or positions of snowguns, for example. In addition, they can follow slope edges. The user can then adapt the existing slope edges to the recorded driving paths using the software and update them. An accurate map of the entire ski area is created. This map is automatically available in the office and in all snow groomers.



Everything at a glance: The GIS Data Manager indicates the current snow conditions in the ski area. Slope edges can be adjusted here by drag-and-drop, for instance.

Maximum precision and efficiency in snowmaking

In the SNOWsat GIS Data Manager, plans for snowmaking can be created, and areas to be covered with machine-made snow can be defined. A snowmaker or slope manager compares the current snow conditions to the plan. They can use this plan to come up with concrete measures for snowmaking and slope grooming. At the same time, the software supports coordination between teams as all responsible persons have access to the data. Working with the snowmaking plan not only increases efficiency in the ski area but also reveals new opportunities for saving money. A true game changer!



Cédric Degraeve is in charge of snowmaking in St. Gervais, France. The SNOWsat GIS Data Manager is an indispensable planning tool in his work!

Bottom line: The SNOWsat GIS Data Manager is an indispensable

Cédric Degraeve is in charge of snow-making in the Saint-Gervais ski area in France. Since last winter, his team has been using this new solution – and he is a fan of it: "The data helps us to identify critical areas early on and to adjust our snowmaking and slope grooming activity with a clear focus. The software simplifies communication between the teams and provides the basis for efficient collaboration!"



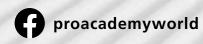
SNOWsat GIS data manager This is how it works:

https://youtu.be/DoDTNekVBvk



PRO ACADEMY

Turning a good slope into a perfect one





Operator training, technical training and online training – PRO ACADEMY is the training academy for efficient slope management that cuts down on resources.

Get your dream job

PRO ACADEMY online training



Advantages of the online training course at a glance

- Learn anytime, anywhere
- Individualized training, both theoretical and hands-on
- Three modules that logically build upon each other
- Suitable for individual persons and corporate customers
- Support by experienced experts
- Training content not limited to specific manufacturers
- Improvement of professional perspectives



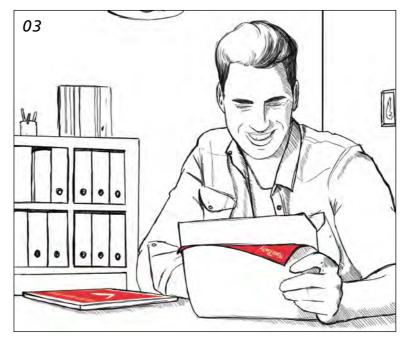
A beautiful winter afternoon in the mountains.

While skiing downhill, Tom suddenly encounters a PistenBully.

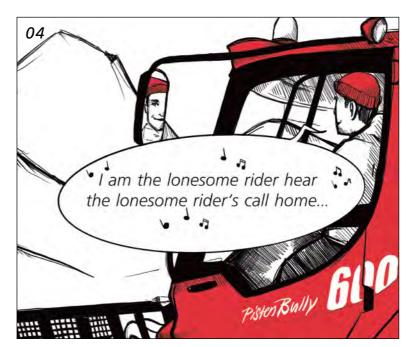


The very next day, he registers for PRO ACADEMY online training. He decides for himself as to where and when he will learn the valuable basic knowledge.

using Snow



Yessss! Tom is happy because he passed the test at the end of the first module. He knows that if he buckles down for the second module as well, he'll be out on the slopes soon enough!



By completing the online training course, Tom has laid the cornerstone for his dream job. Now he's getting started with a successful career as a slope groomer operator at a hip ski area.



The online entry-level training course is now available in the Chinese and Russian languages.

The technical training has been completely rebuilt and is being given a multi-level system. The first in-person course started in June and the first technical course has been available online since July.

Naturally, the PRO ACADEMY training program is also of interest for technicians and managers. With special training courses as well as consulting and management solutions, they too can considerably improve their professional opportunities at the ski area. This is because the subject matter is specifically coordinated to match the skills they require.

Would you like to find out more about your opportunities and options with PRO ACADEMY? Then simply visit us at:



proacademy.info/en/onlinetraining-demo



Top marks for conserving resources

PRO ACADEMY teaches efficiency



Werner Bieg, Head of Snowmaking and Slope Grooming of Lenzerheide Bergbahnen AG,

We asked Werner Bieg (WB), Area Manager of Snowmaking and Slope Grooming at Lenzerheide Bergbahnen AG, Switzerland, to tell us how his team has benefited from the training courses of PRO ACADEMY.

Switzerland

Kässbohrer Magazine (KM):

What expectations did you have for the training?

WB: We had two major goals right away: To improve slope quality while at the same time reducing fuel consumption and repair costs.

KM: You have anchored the topic of sustainability into your strategy. Is the PRO ACADEMY training course an investment into this topic?

WB: Yes. This is because we determined that cost-effective driving and efficient slope grooming uses significantly less fossil fuels and therefore less CO₂ is emitted.

KM: Who attended the training? Snow groomer operators or employees from other areas as well?

WB: Last year, longtime operators as well as the entire snowmaking crew were there. This is because many topics in the theoretical classes also focused on cost-effective snowmaking. This year we registered the operators with less experience to the course.

KM: In hindsight, what has the PRO ACADEMY training course done for you?

WB: Operators have become more reliable in working with their machines. They expanded their knowledge of how to save fuel and work with machines in a way that cuts down on resources.

KM: Will you continue to keep working together with PRO ACADEMY?

WB: Of course! The training is definitely something we recommend.

Lenzerheide Bergbahnen AG booked all three Level 2.0 slope grooming modules for advanced learners: Early season, peak season and late season.

PRO ACADEMY TRAINING DAY MODULE "EARLY SEASON" SKI AREA LENZERHEIDE, SWITZERLAND, NOVEMBER 17-21, 2019 AND JANUARY 23, 2020









12:00 pm -4:00 pm

Slope groomer operators from Lenzerheide Bergbahnen AG wait in a training classroom for the start of their training course. Academy Director Florian Profanter and Sascha Kempf, the new PRO ACADEMY trainer for the German-speaking part of Switzerland, will introduce himself briefly - and then the fun begins! In a four-hour theory block, participants will learn everything about handling the first snowfall of the season. Starting with safety instructions to be observed before starting-up the machine all the way to the professional design of the



4:30 pm

Break. Participants enthusiastically "talk shop" about what they just learned. For example, how fresh snow is pressed and blended with corn snow in order to create a stable layer. What the optimal distribution of snow on the slope looks like and which methods are best suited to protect sensitive vegetation.



The slopes are calling! The hands-on portion begins. Two or three operators at a time are now trained per shift. In the passenger seat of the snow groomers, PRO ACADEMY trainers accompany operators during their normal daily work routine while providing insight and tips. While working in surroundings they are used to and using their own machine, the operator learns a lot, including how they can treat their vehicle with care, how to use it with greater efficiency and where snow can be moved from and transported to. Ski areas also benefit from the hands-on training: Because the training is happening during live operation, there are no unproductive slowdowns or downtimes.



Together with the Arosa recreational area, Lenzerheide is the leading winter alpine sports resort in Switzerland. During the winter season, 400 employees of Lenzerheide Bergbahnen AG tend to every detail of the ski area and all 225 kilometers of its ski slopes. Its specialty: High-quality products and a pioneering role in sustainability. The mission: To maintain this role, both now and in the future, with excellently trained operators. With the tried-and-tested PRO ACADEMY training program, the course for this is set.



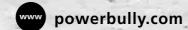
Telemetry

As an absolute first in the utility vehicle market, the PowerBully 18T is the only vehicle worldwide to feature interfaces that enable fleet management "In addition to high payloads and the large, worldwide service network, the PowerBully 18T features an extremely low specific ground pressure and thus has the best off-road capabilities.

It also features connectivity that is completely unique on the track vehicle market."



© powerbullyglobal



Everything in view! Access at any time!

Thanks to Kässbohrer's decades of experience with tracked vehicles in winter sports, we can act as a trailblazer in the commercial vehicle industry

Connectivity: A completely new feature for utility vehicles

As an absolute first on the utility vehicle market, the PowerBully 18T is the only vehicle worldwide that enables fleet management via interfaces. This is of particular interest to both Operations Managers as well as for rental companies. It enables Operations Managers to see, for example, whether the PowerBully urgently requires oil or the engine speeds while driving. Rental companies can see where and for how long their vehicles are in use.

Not to mention that the connectivity of the PowerBully 18T is especially advantageous for servicing. By using the telemetry option, i.e. remote data transmission, the service technician has the option to connect remotely to the respective vehicle in advance of service and read out numerous service and maintenance parameters as well as data on the usage of that specific vehicle. If a problem arises, the service technician will know in advance which parts are needed and can fix the issue more quickly and cost-effectively.

Using this option means securing your investment!



Everything in sight with the telemetry option, a one-of-a-kind on the market – individual service and maintenance parameters or the entire vehicle fleet.

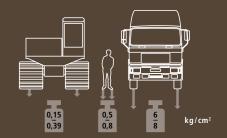




With a payload of 16.6 tons, the PowerBully 18T is the perfect mobile foundation for numerous attachments.

Best-in-class off-road prowess

The best-in-class off-road capabilities of the PowerBully 18T ensure that you have the right vehicle to access hard-to-reach locations in the most formidable weather conditions and on difficult terrain. With respect to traction and climbing performance, the vehicle outclasses all comparable vehicles with its innovative X-track. This is because the cleat design of the high-performance rubber track ensures excellent stability and a powerful grip, even on steep and muddy slopes. An important and unique feature of the X-track is the interchangeability of individual master links.



The PowerBully 18T features a low specific ground pressure that is simply unrivaled.



The herringbone pattern tread ensures the best grip while still being gentle on the surface.

BeachTech 5500

Rugged, reliable and efficient: The self-propelled beach cleaner cuts a good figure even under the toughest operating conditions in the sand and in other locations as well

Beach Tech

NEW The features of the BeachTech 5500: High area coverage Large waste container Outstandingly agile thanks to its 3-wheel design Air conditioning Low maintenance expenses Rugged construction Extensive safety features State-of-the-art 1-man enclosure New software and control system State-of-the-art engine beachtechworld beachtechworld beachtechworld

BeachTech 5500

The new features at a glance



1-man cab Convenient operation

 Joystick, digital operation and control panel as well as
 operation screens / camera systems for monitoring



Safety features Fully equipped

◆ The BeachTech 5500 is equipped with numerous safety devices.



Large waste hopper

• Loading volumes of 1.5 m³ and versatile dump height from 0 to 2,600 mm



High area coverage

◆ Working width of 1,524 mm for an area coverage of up to 19,000 m²/h



Rugged construction

A wide range of applications

• Thanks to the robust cleaning unit, it is possible to use the machine on difficult beaches as well as in offbeach areas with ease (e.g. cleaning water filtration retention ponds, gathering stones, etc.).



Low maintenance expenses

Screening unit

• With only 3 bearings, a hydraulic direct drive, a galvanized screening bed and a transport system unit with carbide-reinforced wear parts, the screening unit requires very little maintenance.



3-wheel design Excellent maneuverability

◆ The 3-wheel design enables a curve radius of 0 degrees.

Out the on the beach

The BeachTech 5500 in action in Costa Brava, Spain

Kässbohrer Magazine (KM) has had a chat with Xavi Sala (XS), Group Leader of GBI GRUP, about the new BeachTech 5500. His operators were some of the very first to use the vehicle over a long period and were able to give us the following feedback:

KM: Are there any special challenges at your location?

XS: We maintain many smaller beaches, some of which have narrow access points, a high number of footpaths, showers, sun loungers and so forth.

KM: What was the deciding factor for the decision to buy a BeachTech 5500?

XS: With a self-propelled beach cleaner, we can reach all beaches and bays of the community without any problems whatsoever. For narrow beach access points as well as smaller beaches and bays, maneuverability is an important factor. The BeachTech 5500 in particular is extremely nimble and allows for the tightest turning radii. However, excellent cleaning results and the finish were very important to us.



Jaume Geli, Head of Service of GBI GRUP and operator of the BeachTech 5500

KM: What do you like best about the vehicle?

XS: We had previously been using the predecessor model, the Cherrington 5000, with which we were absolutely satisfied. However, in contrast, with its air-conditioned driver's cab, cameras and control console, the BeachTech 5500 truly offers incredible innovations with respect to safety and operating comfort and convenience. By designing this self-propelled beach cleaner, Kässbohrer has taken a spectacular jump forward. We are very happy with the new features of the BeachTech 5500!

KM: What do you value in your collaboration with Kässbohrer?

XS: The Spanish Kässbohrer dealership CASLI S.A. acts as a competent on-site contact partner for us. This made it possible for us to clarify any questions or resolve pending issues in a timely manner. We appreciate the new features and the vehicle's reliability. At the moment, only a little bit of maintenance is necessary, but this is easy to carry out. We are completely satisfied with the cleaning results.

KM: Do you receive feedback on the quality of your beach directly from your guests every now and then?

XS: Feedback from guests made its way back to us through public administration channels and is highly positive.

Our customers are ambassadors who speak for the BeachTech brand and take its good reputation out into the world.

To ensure that our products are geared toward meeting the needs of customers and markets, now and in the future, we remain in contact with our customers. In Spanish Catalonia, the GBI GRUP cleans the beaches of Lloret de Mar, Platja d'Aro and Calonge.

They purchased three BeachTech 5500 vehicles in 2019.





BeachTech - clean beaches

Small pieces of paraffin sometimes drift ashore. They are most often small and either yellow or white. This happens again and again and has ramifications for us all: Humans, animals and nature.

Those who have lived close to the sea for a few years know that the sea occasionally washes peculiar objects up onto the beach in massive quantities: Plastic waste, shoes and razors, or even suspicious barrels with unknown contents. The German State Office for Coastal Protection (Landesbetrieb für Küstenschutz) has to examine what they contain each time this occurs.

Paraffin is a particular type of floating refuse. The most recent incident involving paraffin washing up on the beaches of Northern Germany happened at the beginning of September 2019.

In Westerland on Sylt, paraffin washed ashore for eleven days straight. Residents of the island and guests diligently assisted in the effort to remove the refuse. The greatest contributor to the cleanup, however, was the community's very own BeachTech 2800. Not only was the vehicle able to remove the paraffin faster and more efficiently than excavators and other machines – thanks to the ability to precisely sieve out the paraffin, the vehicle interferes only minimally with the sensitive sand ecosystem.

Three containers, each containing 20 cubic meters of paraffin, were gathered up from the beach!

The fallout from such pollution in areas of the Wadden Sea World Heritage region and all coastal regions worldwide are enormous.

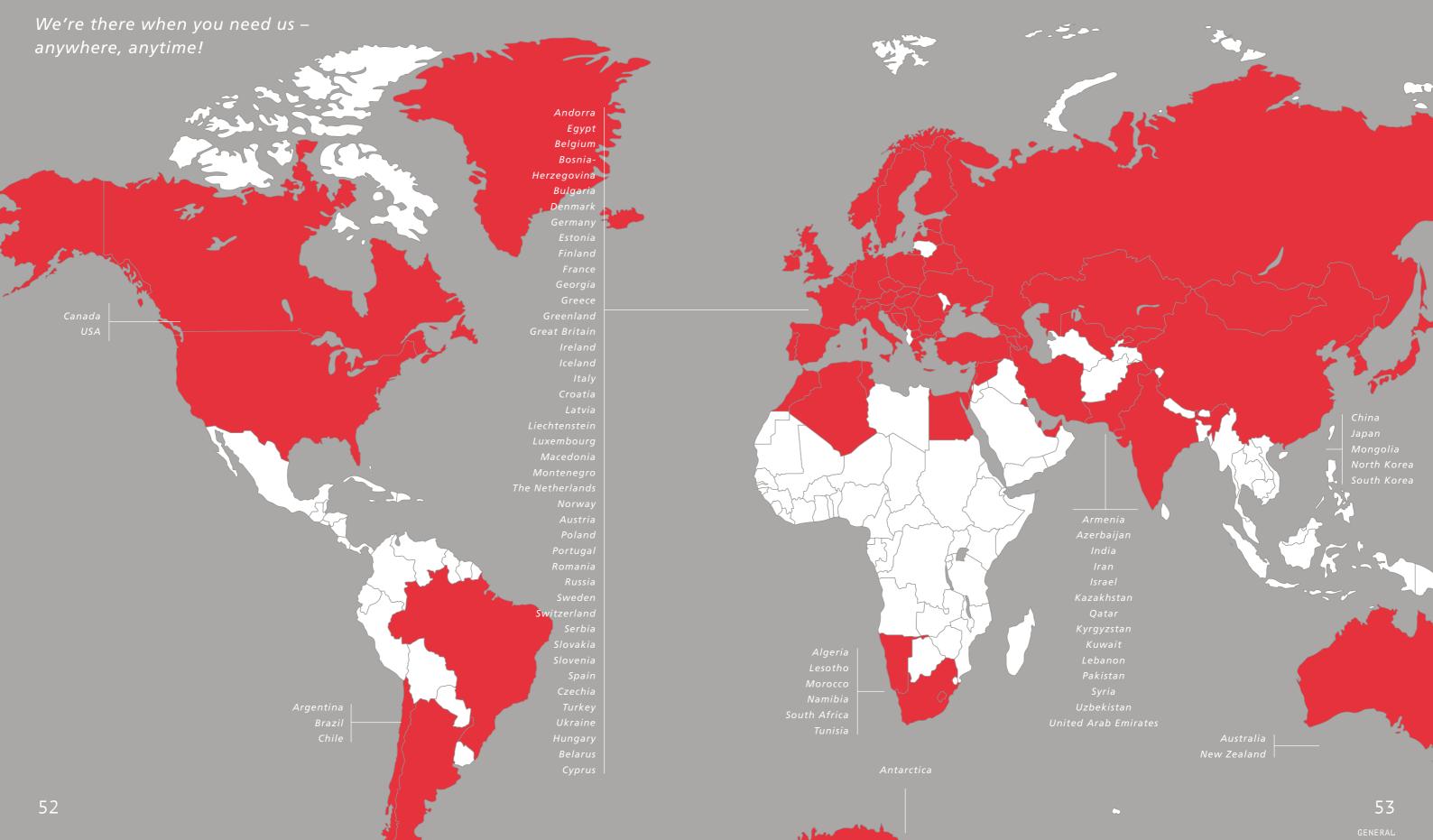
However, not only paraffin but also plastic waste is washed onto the beach again by the sea. If this environmental waste is gathered up effectively from the sand by the use of beach cleaners, the unwanted floating refuse – whether paraffin, globs of oil, plastic or other trash – can be prevented from washing back into the sea in the form of tiny particles, where it turns into "fish food". This means that BeachTech not only ensures visual cleaning results on the beach, but also provides efficient and cost-effective maintenance of sandy beaches and environmental protection.

And it's not just paraffin – our beach cleaners also effectively collect plastic garbage!





365 days a year, 24 hours per day



Quality is when the customer comes back and not the product!



The highest quality standards at Kässbohrer

Quality processes before, during and after production take top priority

We invest a lot of time in the development of vehicle components and we even get our customers and suppliers involved in this process. Our quality assurance department performs audits at the suppliers' locations before and during component production. The audits verify workflows, production processes and component quality.

Once the delivery of the components is received, the incoming goods inspection is performed. The inspection is performed using cutting-edge measuring technology. We place the most stringent requirements on material quality and accuracy of fit in order to meet the quality standards of our customers.

During development of a new vehicle, service and design engineering collaborate closely as part of a continuous improvement process to ensure the best possible quality and to guarantee fulfillment of the customer's requests and requirements.

Prior to delivery, two state-of-the-art test benches are used to test every vehicle under various load scenarios. You can also fully rely on Kässbohrer during and after delivery of a vehicle. Our service team supervises delivery and rigorously tests several vehicles again after approx. 100 operating hours at randomly selected customers' facilities .

Fast, intuitive, individualized: Whether "PistenBully 23" or "Erika The new search function can call up any vehicle in a flash.

By offering the new spare part online store, Kässbohrer Geländefahrzeug AG is giving you the ability to put in orders with even greater speed and efficiency. The new online store can now also be accessed on mobile devices so that you can order parts whether you are standing right next to your vehicle or at the office.

Our new spare

is live

part online store

Of course, the tried-and-tested aspects remain as they were. These aspects include the logic of the ordering procedure and the spare parts documentation. However, the option to place orders using tablets and similar devices is com-

is clear and intuitive – and therefore extremely user friendly. A big added plus for employees in workshops: You can give every sin- when they are needed. gle vehicle in your fleet a unique name that is specific to that ski area. Whether it's "PistenBully 23" or "Erika": Any vehicle in the fleet, along with all of its specific data, can be called up in a flash using the new search function.

Direct link to **SNOWsat Maintain**

The new spare parts online store can be linked to SNOWsat Maintain, the digital maintenance

pletely new. The modern interface management. If desired, this direct communication allows the required maintenance parts, for instance, to be ordered exactly

Your benefits

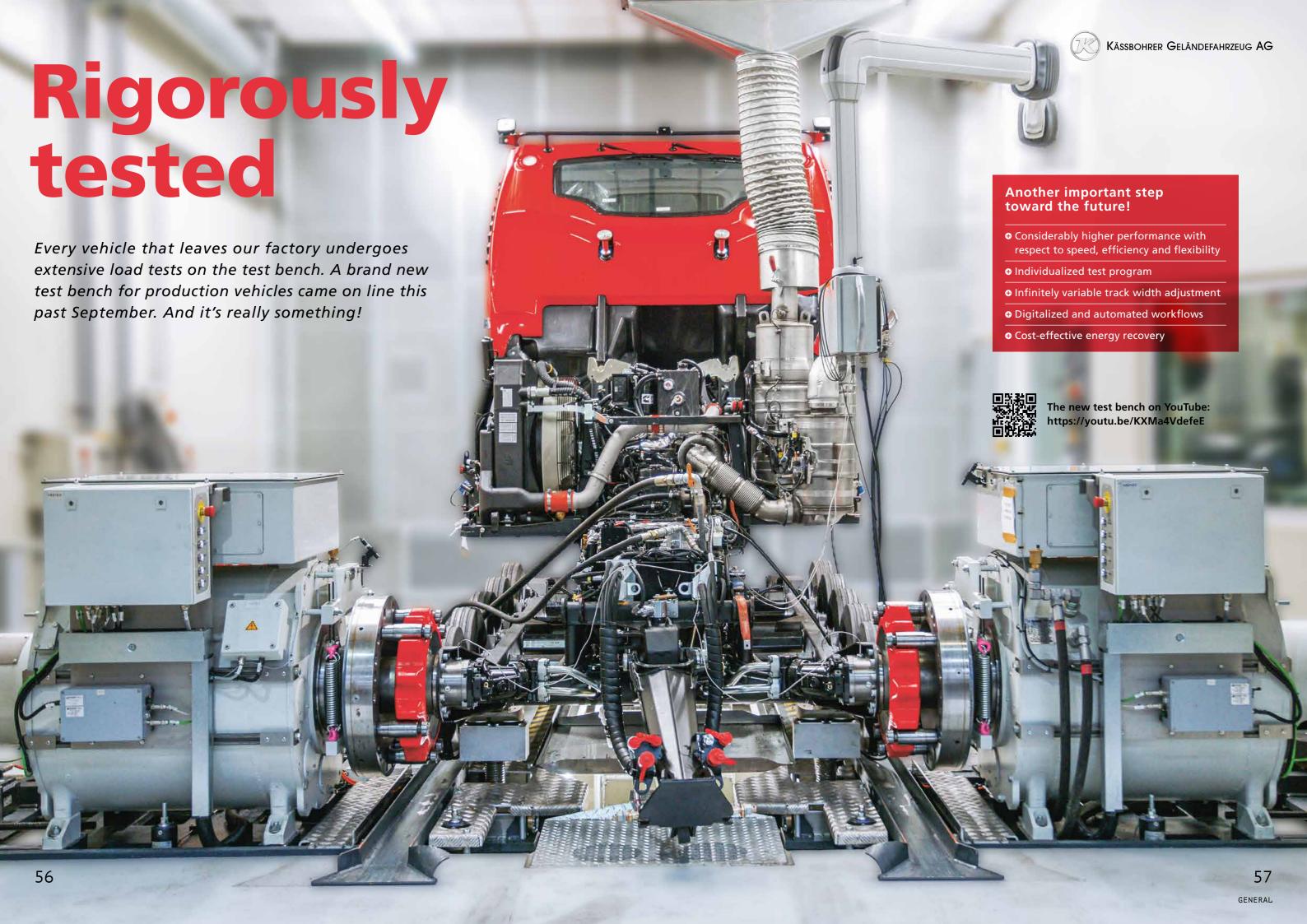
- Optimized search function
- Article availability display
- Tracking your order
- Automatic online notification about a variety of promotions



Measurement of 3D geometries with state-of-the-art scanning technology.



Ralf Gobs, Head of Quality Assurance at Kässbohrer





A part of the bigger picture

Every industry has its own specific requirements

On the one hand, minimum weight and long service life. On the other, application in extreme conditions. Fiber composites are extremely versatile. We use them to create application-specific solutions for a wide variety of industries – along the entire process chain. We advise, develop and design. We produce models, molds, samples and prototypes. Going into series production. We produce complete units fully assembled with widely differing outsourced parts. And we rely upon state-of-the-art machine facilities for the entire production: This includes 5-axis CNC milling, a tempering booth, sanding booths and a gelcoat spray booth. Of course, we also take care of logistics in-house. In short, we take care of the big picture and the tiny details as well.



Modules for the PistenBully



Utility vehicle components

- Components for snow groomers
- Outer shell components
- Roof modules (FOPS/ROPS)
- Large side panels
- Aerodynamics packages

Offering the highest quality in fiber composite materials while at the same time reducing dependency on suppliers. Can it really be done? Yes. By establishing Kässbohrer Composites, which is based in Austria, this is exactly the path that Kässbohrer is taking. The specialist and expert partner for fiber composite technology does more than produce glass-fiber reinforced plastic and carbon-fiber reinforced plastic components for various industries. For our own in-house needs, we also produce components such as those used in the driver's cab, the winch covering and the floorboard of the PistenBully.

Attachments for fire-fight-ing vehicles



Tanker and utility truck attachments

- Containers for corrosive media
- Water tanks/foam tanks
- Tank attachments with integrated equipment storage
- Crew cabins
- Workshop vehicles

Components for power plant construction



Industrial components

- Chemicals-plant/genset construction
- Power engineering
- Highly accelerated machine components
- Process engineering
- Energy absorbers, thermal and electrical insulators
- Rotor sheaths

We practice sustainability

To make sure we are set up for a sustainable future, our BLUE IQ corporate strategy integrates technological innovations into comprehensive economical, ecological and social concepts. This is the only way to create a portfolio with products that are matched to each other in ways that make sense. Our customers gain greater benefits and higher cost-effectiveness, while we all benefit from a better environment.



- A comprehensive energy generation concept covers 50 % of the electricity requirement with self-generated power
- 16 charging stations for electric cars – powered by green electricity
- Waste recovery and recycling
 600 m² devoted to insect-friendly
- wildflower meadow
 Energy-efficient lighting concept
- Document management system that cuts down on paper usage
- Reduction of plastic waste within company



TECHNOLOGY/INNOVATIONS

- PistenBully 600 E+: The world's first and only snow groomer with a diesel-electric drive
- First snow groomer with EU exhaust gas stage V, quietest and cleanest engine in its class, diesel particle filter included. More environmentally friendly than all others while also using fewer resources ...
- PistenBully 100 E study: The world's first snow groomer with a purely electric drive; 100 % emission-free
- Studies and development activities for alternative drive concepts
- Remote maintenance: The environmentally friendly CO₂-free online fault analysis
- Use of laser technology for predictive driving



PARTNERS

- Sustainability is based on demonstrating trust and reliability to our customers, business partners and employees
- Environmentally friendly thanks to short transport routes: Over 60 % of our suppliers are located in the region
- Vitalpin Association: International non-profit organization for the protection of the alpine biosphere within the German-speaking region

"Each and every one of us can practice sustainability in our lives: We implement sustainability actively and deliberately.

This is the only way for us to fulfill our responsibility toward society,

the environment and generations to come."



lens Rottmair,

Chief Executive Officer

Kässbohrer Geländefahrzeug AG



CERTIFICATIONS

- SIS Eco-Award 2016 for environmentally friendly developments in the winter sports industry
- Certified environmental management (ISO certificate 14001:2015)



DEDICATION

- Getting kids away from the computer and out into the snow thanks to the PistenBully Mini-Ski
- Camps for kids: Promotion of skiing for kids
- Promotion of up-and-coming professional talent with the German Ski Association (DSV) and the German Alpine Association (DAV)
- Collaboration with country-specific ski associations and the International Ski Association (FIS)
- Sponsoring professional athletes in skiing



PRODUCTS

- SNOWsat slope and fleet management: Efficient, cost-effective and ecological while conserving resources
- PRO ACADEMY: Training academy for teaching cost-effective slope grooming that is environmentally friendly and cuts down on resources
- Select vehicles: Completely re-manufactured vehicles conserve valuable resources
- BeachTech vehicles successfully in action on beaches polluted with oil
- BeachTech: Reduction of plastic waste in the sea















A major upgrade – The new training center

TRAINING is something that Kässbohrer strives to provide at the highest possible level. This ambition has led to the establishment of a new state-of-the-art training center for the trainees. Now there's nothing standing between them and the beginning of a prosperous career.





The new Kässbohrer Geländefahrzeug AG training center – featuring top-notch equipment!



Top-notch equipment:

- In-house cars and our own PistenBully for hands-on training
- Lifting platforms for ergonomic work
- Milling machines and lathes
- Contemporary "Think Tank" conference room
- Fully equipped training classroom
- Common room with kitchen



Kässbohrer Geländefahrzeug AG is one of the best training companies in all of Germany! And as one of the best, we have been given the official "Germany's best training companies 2020" seal of approval.



Marvin Schuster



Our trainees are also fans of the new facility.

Michael Dilger



Oliver Kukla

Are you interested in training?
You can find out more about training with us here:



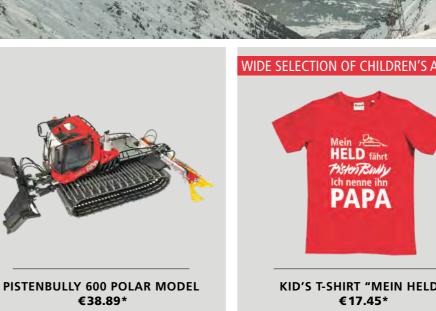
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HEAD INTO THE WINTER WITH TOP-NOTCH GEAR!











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