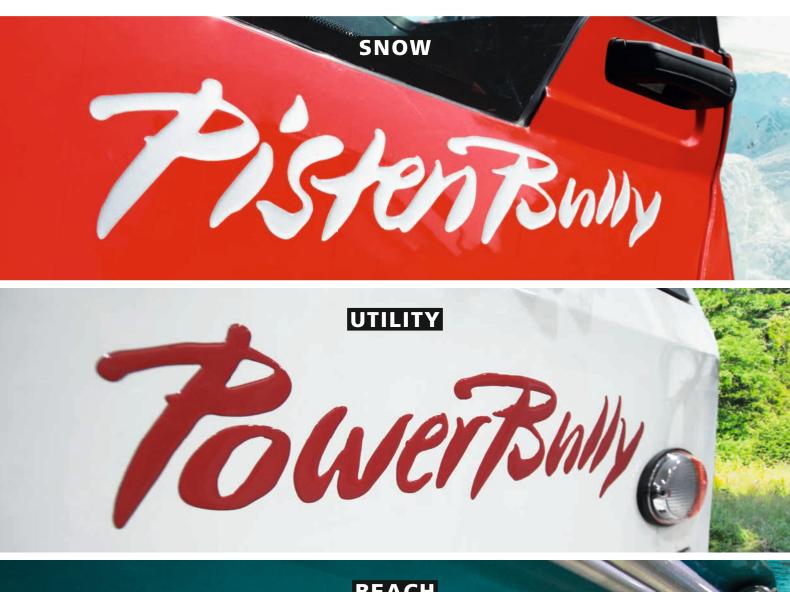


ISSUE 03 - WINTER 2018/2019







Dear readers.

Some of you may still remember the PistenBully 145. A lot has happened since its launch in 1973, and I'm not just talking about the vehicle design. I am particularly impressed by the amazing progress in terms of performance, efficiency and resource conservation. At Kässbohrer, we've kept up this progress consistently and set new standards on the market with our products. These include everything from the hydrostatic propulsion drive to the world's first winch vehicle for steep slope preparation and even the current 600 series engine – the most environmentally friendly and quietest in its class. Our forward-looking approach and consistent customer orientation have given us our current position of world market leader.

Building on this history, I can hardly wait to celebrate PistenBully's 50th year in 2019, just a few months from now. We look back with pride – and are motivated and curious to discover what is ahead of us. We are wondering how we can provide even better support to our customers. How we can help them prepare slopes in a way that is even more economical and environmentally friendly. What possible solutions can be found that meet our customer's requirements exactly and how do we enable them to do entirely new things? Take SNOWsat Analytics, for example. This tool is the first to enable users to merge digital data from a wide variety of sources as well as maintain it centrally and use it to manage the ski area. A truly innovative product.

We also show the same enthusiasm in the way we deal with societal changes. For many years now, we at Kässbohrer have been taking on social responsibility and advocating for a better world for generations to come. I think it's genuinely important to advance the interests of young people and get them involved. In light of this, help me welcome our new kids' page! I'm pleased to announce this new addition to the magazine.

I hope you enjoy reading our third issue

Yours, Jens Rottmair

Executive Spokesman Kässbohrer Geländefahrzeug AG

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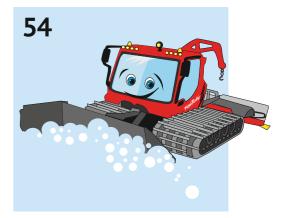
New: The little Bull















February 2018: Kässbohrer launched the new

PistenBully 600 to the world market.

With higher output and better climbing performance.

With reduced weight and lower fuel

consumption. Packed full of patents.

In just a very short time, it has catapulted to the top

and become the favorite of everyone

who has driven it.

Logical. Emotional.

The PistenBully 600 put to the test

The great thing about the PistenBully 600 is that it is a vehicle that delights both the left and right brain. It features outstanding driving performance, efficiency, and operating specifications. At the same time, it features outstanding handling, comfort and convenience, well-tailored adjustment and configuration options – all thought out to the last detail. We are happy to pass the compliments on to our customers; after all, we developed the new 600 in close collaboration with them.













Greater precision. Greater safety. Greater simplicity.

The PistenBully 600 and its assistance systems

How can the everyday work of a PistenBully driver be improved even more? One way is through simplicity. This is exactly what makes the newly developed Kässbohrer assistance systems stand out. They handle certain tasks for the driver, making his or her life easier – and making the snow groomer a simpler, more manageable tool. This enables the driver to keep a clear head and focus on what's important: perfect slope preparation. The PistenBully 600 shows all the possibilities of the new assistance systems.





SlopeTracer

Flat. Hilly. Uneven. Terrain can hardly be any more varied. Here you have to keep an eye on everything. In the new SlopeTracer, a sensitive slope sensor in the front of the PistenBully detects the vehicle inclination and calculates a surface model based on this. The control system precisely follows the surface and the input from the driver. For optimum following of the terrain contour.



Automatic winching force control

There's steep. And then there's "ski-slope" steep. Inclines of over 100% are an everyday scenario for winch vehicles. On these slopes, you are literally hanging by a cable. Continuous comparison of the driving and cable speed allows the pulling force to be adjusted automatically. This is easier on both the cable and the driver's nerves. Even the steepest slope is perfectly prepared.



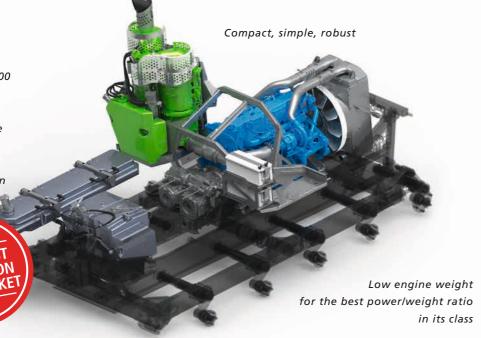
Left. Right. Left. Hands on the wheel, eyes on the slope and concentration to the max. Thanks to automatic steering support and automatic counter-steering on side slopes, AutoTracer does much of the work for the driver. Even the curviest slopes are no problem.



The best work

An interview with Kässbohrer development partners
Cummins and Bucher

One of these partners has made it possible to design the PistenBully 600 and 100 series to fulfill the EU's Euro 5 emissions standard. The other partner is the reason why the PistenBully 600 can be controlled regardless of temperature. Each company's take on the collaboration with Kässbohrer is presented here in two separate interviews.





Cummins: Globally successful developer and manufacturer of engines and generators



Gary Beshears (GB)
Heavy Duty Off Highway
Product Manager
Cummins Engine Business

Kässborer Magazine (KM):

Mr. Beshears, what were the specific challenges during the project between Cummins and Kässbohrer?

GB: The biggest challenges were definitely improving the torque and output at extreme elevations.

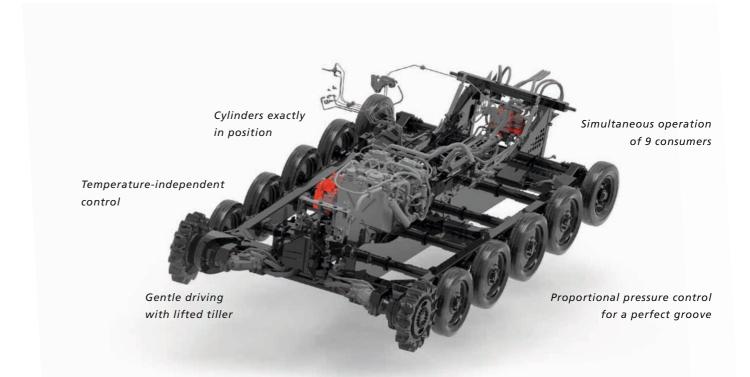
KM: And how does Cummins benefit from the collaboration?

GB: This partnership has made it possible for us to boost the performance of the motor and the machine tremendously. None of this would have been feasible without the dedication of the Kässbohrer development team and of our Application Manager, José Cons-Baron. Knowing that our motors can be relied on under extreme conditions gives us a lot of certainty and confidence for all other application purposes.

KM: Can you think of an example of how a problem was solved by outstanding dedication?

GB: Yes! I'm thinking back to the intense discussions we had while planning and implementing the start button. Kässbohrer and Cummins are truly ideal partners. We have been supporting each other consistently and making each other better. This is what has allowed us to built such an extraordinary machine. A strong combination of innovation and solid commitment between two companies that have been proving their worth and growing together for years.

even better together



BUCHER Bucher Hydraulics: Internationally leading provider hydraulics of hydraulic drive and control technology



Georg Minzer (GM) Product Manager for Bucher Hydraulics

KM: Mr. Minzer, did Bucher Hydraulics face any special challenges during this project with Kässbohrer?

GM: Yes, the temperature-independent control. Because ice and snow behave completely differently from water, it was a challenge for us to adapt the LCV valve to account for this difference. Now, the valve has been perfectly tailored to the requirements of Kässbohrer like a made-to-measure suit.

KM: What advantages does Bucher Hydraulics gain from the collaboration?

GM: It has allowed us to demonstrate definitively that we are able to implement top-level proportional control systems in the slope-grooming vehicle market as well. The LCV valve meets a whole range of requirements in the overall system. In addition to temperature-independent control, it ensures that cylinders are held precisely in position and that up to 9 consumers can be operated simultaneously with the joystick, among other features.

KM: Can you think of an example of how a problem was solved by outstanding dedication?

GM: The special challenge for both partners was to have a perfect, durable surface structure for the slope. A corduroy pattern in the snow creates a soft and therefore particularly pleasant feeling for winter sport athletes as they travel over it. To achieve good corduroy, the tiller has to follow right in tune with the constantly changing surface, even in difficult snow conditions. At various ski resorts – both in the high-alpine glacier zone and at the cross-country ski center in the valley – we spent several weeks optimizing our triedand-tested technology, specially tailored to Kässbohrer's requirements, until we created the perfect corduroy.





PistenBully mini-ski campaign days held throughout Baden-Württemberg

With the slogan "Get away from the computer and out in the snow!" grade school students throughout Baden-Württemberg were invited to attend one of the 20 campaign days held last winter. Instead of math and German, the agenda for the day included sliding and slalom. The PistenBully mini-skis – which we made available at all support points of the SBW (Skiverbände Baden-Württemberg, a local ski association) – provided thousands of exciting and slippery, slidey experiences in the snow. They were so well received that we are now adding another 2,000 of these plastic skis.



First encounters with skiing: The PistenBully mini-ski gives everyone who is interested a chance to give skiing a try.

Successful integration into physical education classes

Philipp Rießle, a primary school teacher in Germany's Upper Black Forest region and brother of Olympic champion Fabian Rießle, has invested a great deal into bringing the PistenBully mini-ski to kids' classes. "The children had regular contact with the snow during the winter months. It was a smashing success! We now have 40 new kids in our training group who have found 'their' sport this way and already taken part in their first competitions!"

Future project "World of Winter Sports"

Another step is the development of "Worlds of Winter Sports." The objective is to combine promotion of recruitment and development of young people for winter sports in the Alpine Foreland or the highlands near the Alps. At snowy ski lifts with small mogul training runs, sconces and courses as well as guidance from qualified teachers. The red PistenBully mini-skis are also right there in the mix. This makes it easier for clubs and schools to plan the implementation of winter sports days and makes them a more appealing option.



Family ski resorts around the world

Share your ideas now!

Various concepts and approaches from all over the world that have concentrated particularly on families are now being collected at www.pistenbully.com/kids.

Send in yours and share

Those familiar with PistenBully know that for many years, we have been campaigning to get kids out in the snow. So families are particularly near and dear to us. Thanks to being close to our customers, we know that there are many interesting concepts, innovative approaches and excellent models in this area that have already been implemented and have proven themselves in practice.

For example, one ski resort is geared quite specifically towards youth groups, while another focuses particularly on families with small children. We want to provide an overview of these concepts and have created a digital platform for this purpose. At www.pistenbully.com/kids you can present ski resorts and share your family pricing ideas. As an inspiration for other ski resorts, for the sake of learning from one another and to give the "family-friendly ski resort" a future.

Join in and send your ideas to ideen@pistenbully.com.

www

pistenbully.com/kids



Present your ideas and send your brief profile to ideen@pistenbully.com



Fair prices for families with small children – that is the motto at the Oberstdorf/Kleinwalsertal ski resort. The "Snowman Ticket" for the littlest kids costs only 9 euros and children born in 2002 or later can even ride for free when accompanied by a parent from March until the end of the season. The transferable multi-day ticket (3 or more days) is particularly popular among young parents: While one is sledding with the kids, the other can explore the ski resort in peace. And with season tickets the parents pay only for the first child – all others ride for free.

There's action here! China, PistenBully

The ski industry in China is growing rapidly. Last year 133 new ski resorts opened. Large corporations are investing in ski resorts and gigantic indoor ski centers. About 60 of the overall approximately 700 ski resorts meet the standards of European and North American resorts. The number of winter sport athletes rose from 2016 to 2017 by about 16 percent to 17.5 million.

This shows impressively just how much the government is supporting winter sports – surely also to generate potential medal winners for the country in the 2022 Olympic Games.

It is evident that China is a highly interesting market – one of few with growth potential. If only a small percentage of those interested start engaging in the sport themselves after the Olympic Games, that will mean an enormous number of new skiers.

PistenBully has been active in China for more than 30 years. Our representative, Melchers (Beijing) Ltd., has a lot of experience. The staff is on-site at the customer's location. It focuses on perfect service. It provides information about new trends and developments. It supports events. Its momentum is almost unstoppable.



Freestyle World Cup in Secret Garden

In 2011 the ski resort known as Genting Resort Secret Garden was completely rebuilt and has groomed slopes, hotels and attractions that provide winter sport athletes with everything they could wish for. That is why the alpine snowboarding (slopestyle, halfpipe) and freestyle skiing competitions will be held there for the 2022 Olympic Winter Games in Beijing. So it is just the right place for the Freestyle World Cup 2019. With halfpipe and aerials made by PistenBully.



and winter sports

SNOWsat installation in Secret Garden

The hardware was already installed last year at Secret Garden and the system has been put into operation. Preparations for the World Cup are now requiring changes to the terrain. Therefore, a new digital terrain model is currently being generated. Secret Garden is the first ski resort in China completely outfitted with SNOWsat V3 – there is nothing more current or more precise.



PRO ACADEMY in China

Starting next year, the online training will also be available in China. Additional training sessions are being planned and will be held at various ski resorts.



Kässbohrer is sponsoring the FIS XC Skiing China City Sprint Beijing 2019

The nordic disciplines also deserve to be popularized and supported in China. We are happy to help and have supported Yan An City Sprint, the first event of this kind in China, with 2 PistenBully vehicles. This race series will continue in 2019 with three races. PistenBully is at the start again here too!



Service vehicle creates proximity to the customer

In order to visit and carry out summer maintenance at ski resorts in the provinces in the northeast alone, the new service vehicle traveled approximately 6,000 kilometers (3,730 miles) this summer in just under 4 weeks.

24/7 Service Hotline

Having certainty that you can always reach someone – that is something customers love.



FIS Clinic in Secret Garden 2018

This winter, too, Kässbohrer will again be supporting the FIS Clinic and be on site with specialists from the areas of PRO ACADEMY, SNOWsat and Park Building to share the latest in theory and practice with respect to building parks.



Kässbohrer opens a service center

A new service center with a total area of approximately 1,700 m² (18,300 ft²) provides space for a workshop, training classrooms, offices and storage areas as well as meeting rooms. Eight employees are available for everything relating to sales, technical support, stock and administration. This provides our customers with convenient all-inclusive services.



Big Air in Beijing

The first Big Air event took place in China in Beijing in 2017. For the Olympic Games, planning is already under way to build the ski jump and an entirely new facility. Here too, PistenBully is on hand with advice based on a lot of experience and expertise.

Ready to play

Using two PistenBully 600 LTD machines, Schneestern is making the ultimate snow park a reality in Ischgl, Austria

too boring. "We have been collaborating with Kässbohrer for years and have also been equipping our snow park with Kässbohrer machines. And, of course, the results

> Hannes Parth, M.A., Chairman of the Board at Silvrettaseilbahn AG

have never disappointed."

Preparation is everything This moment is the culmination of weeks of planning. Everything has been prepared down to the last detail and the design has been optimized for the on-site conditions.

The snow park in Ischgl consists of three different facilities: Park Area I, "All fun,"

is a fun place for freestyle beginners. Park Area II, "Improve your skills," is designed

for more advanced freestylers who want to further refine their craft. Finally, the

"Get stoked" funline combines elements from ski cross and boardercross with

waves, steep curves or even jumps - for those who think normal slopes are just

.500 m²

November 2017, 2,300 m above sea level in the Paznaun valley. The shapers look at the blueprints eagerly. Ischal is one of the best-known winter sport areas in the Alps. It only makes sense that it would be home to a top-quality snow park. To make this a reality, there are 6 experienced shapers from Schneestern and two PistenBully 600 LTD machines not far from the Idalp waiting for their final briefing session to come to a close.



18

PistenBully and Schneestern a perfect team

Back to the snow: The briefing is over and everyone knows what his/her job is. Two shapers are about to hop into the two red machines and get started. What follows is a perfectly choreographed "dance" between the two PistenBully machines. This precise cooperation between man and machine results in a snow park set-up that covers more than 1,500 square meters and even contains an air bag jump. The process takes just under 480 hours of work. It's a project that the young Schneestern workers were delighted to be a part of. And the result truly inspires awe in each of them. The project video provides clear evidence of this.



SNOWsat makes your park 1 construction more efficient!

The target profile of the course or of individual modules is stored in the SNOWsat vehicle system. This means that the drivers know exactly where they are in the park and can keep track of the current status in relation to the target profile. They have a colored representation on the display to help them in this regard. Orientation using the green area results in a model that is correct according to the target profile. In addition, it is possible to determine the required volume of snow in advance and then place it selectively.

This also saves time and money in park construction.





Tubing fun

It's part of football season.



PistenBully and SNOWsat keep the snow level at Titletown

Situated in Green Bay, Wisconsin near the shores of beautiful Lake Michigan, USA is Titletown, the area's newest year-round attraction. Developed by the NFL's Green Bay Packers, Titletown sits on land adjacent to the Packers' venerable stadium, Lambeau Field. Since opening in 2017, Titletown has proved itself to be a unique destination area beyond just the football season. Its stretch of public park space offers a wide variety of cultural activities and provides gathering spaces for community members and visitors of all ages to enjoy no matter the season. Titletown includes dining, arts and crafts, game courts, playgrounds, farmers markets and festivals. Fitness programs, game day events and holiday celebrations are also part of the equation.



Ariens Hill

One of the key attractions for Titletown in the winter is Ariens Hill tubing hill. Aimed at encouraging families to enjoy outdoor activities during the colder months, Titletown built this structure specifically for tubing. The tubing portion is 100 meters in length including the runout. An automated return carries tubes back to the top of the hill. To groom the tubing lanes Titletown, purchased a PistenBully 100 4F equipped with SNOWsat snow depth measurement.



Kyle Nooker, Titletown Facilities Manager

PistenBully for unique applications

Titletown's tubing hill presents unique challenges. A snowmaking system has been installed to ensure snow coverage regardless of Mother Nature's cooperation. The engineers had to calculate for this snow load. At a height of 14 meters, the Ariens Hill building is substantially reinforced in order to support the weight of the snow on the tubing lanes as well as the PistenBully when grooming. Maintaining an exact snow depth on the tubing deck is therefore critical. To enable this the PistenBully 100 is equipped with SNOWsat snow depth measurement. The operator is able to monitor the screen display and use the front all-way blade to set the snow level. Core samples are taken daily by the Titletown crew to calculate snow weight.

Precise grooming required

Grooming the Ariens Hill requires a skillful operator. The tubing structure has walls on each side and small turnaround area at the top. It is detailed work in a confined space. "Overcoming the unique challenges of operating the PistenBully on Ariens Hill is made easier with the help of SNOWsat" comments Kyle Nooker, Titletown Facilities Manager. "Inside of Ariens Hill is both a restaurant and an event space, occupied by the public. Engineers have determined the appropriate snow load on all areas of the hill and it is important for us to monitor snow depth." Mr. Nooker further explains, "It is also important that the PistenBully blade does not cause damage to the exterior of the structure. With SNOWsat, we are able to easily and efficiently monitor snow depth to ensure

Representatives from Titletown are very pleased with the performance of the PistenBully 100 and SNOWsat. Plans are in the works to further utilize both in future applications.

Kassbohrer is proud to be a part of Titletown. Organizations that advance outdoor winter activities fit with our BlueIQ corporate philosophy of partnerships and the promotion of winter sports. The importance of getting the family, especially young children, outdoors in winter cannot be underestimated.

SPT - taking things even further

Our cooperation partner SPT (Snow Park Technologies) is now taking the next step as well. SPT is working together with CA Productions, a full service event production company that is primarily dedicated to skateboarding. In the start-up phase, the two companies collaborated on projects such as the innovative SuperSnake project, which combines snowboarding and skateboarding. And that's just the beginning.

At the same time. PistenBully is expanding the successful partnership with SPT even further. For instance, the following events are coming up this winter: the Winter Dew Tour Breckenridge, the Winter X Games in Aspen and the Burton US Open in Vail.

The SPT team members have bemachine runs smoothly and quietly. Driving the PistenBully around for different feeling from driving other machines on the market."









Pioneer. Trailblazer. Efficiency booster!

SNOWsat is the epitome of a practical tool. Inspired by our customers.

Designed to meet their requirements down to the last detail.

The latest proof: two new features.

SNOWsat ToDo and SNOWsat 3-point blade measurement –

by offering these two features, Kässbohrer

is opening up new options for operators and drivers.

More organizational transparency. Higher precision when working.

Altogether, more efficiency for the slope and park.



SNOWsat ToDo



A fence blown over by the storm. A protective mat that has slid out of place. A signpost that has been run over. When the slope manager or the ski patrol roams around the ski area during the day, they notice things that need to be taken care of. In the past, you had to take hand-written notes and pass them on to others. Now you can use SNOWsat ToDo for this. This digital organization tool makes it possible to assign tasks to a machine or a specific driver in a way that is quick, easy and fits the schedule. Nothing is forgotten and every team member is kept in the loop. Everything can be planned efficiently and completed on time.
For the perfect slope.

01

Entering a task

It's noon on Saturday. The slope manager takes a drive around to check on the slope and discovers that the top part is covered in ice. He/she uses a smartphone to create a task in SNOWsat ToDo.



Assigning a task

assigned to a specific vehicle.

The slope manager can assign the task to a specific driver or vehicle. Once there is a

WiFi signal available, the task is loaded to

the terminal. Alternatively, the task can be



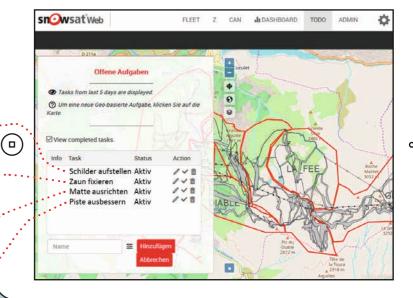
Straighten the

02

Describing the task

The manager enters the exact time of his/her observation and the deadline for when the top of the slope should be re-groomed. He/she marks the exact point on a map.





Say goodbye to paper everywhere: Using SNOWsat ToDo means that drivers can view their tasks at any time. Tasks can be called up in any web browser and in SNOWsat Fleet.

A Repair the slope

05

Completing a task

The driver has re-groomed the top of the slope and put a check mark next to the task. The status is updated on the terminals of his/her co-workers. Task complete!

04

Dispatching the task

The task is sent from the server to all the relevant vehicles using SNOWsat ToDo. Now everyone can see it. In addition to the tasks defined for him or her, each person can see all non-assigned tasks. This includes the current status: open, active or complete.

06

Assigning more tasks

The slope manager has discovered another problem. Since he/she has a driver nearby, the managers add the task to this driver's assignments. This way, the slope is brought back to perfect condition quickly.



SNOWsat 3-point blade measurement

Perfect!

Back-blading a kicker. Or preparing a World Cup slope. Precise work in slow motion. Wherever working with a PistenBully becomes a challenge, SNOWsat provides the perfect support thanks to its 3-point blade measurement. The tool determines the snow depth at three points directly under the blade, providing a total of twelve possible blade movements. The new blade measurement feature is the result of close collaboration with Weisse Arena Bergbahnen AG based in Laax, Switzerland. It is the only system to offer cutting-angle adjustment.

First on the market

In addition to lifting and lowering (01) and lateral tilting (02), the blade measuring feature also supports forward tipping (03) of the blade.

User-friendly representation for intuitive operation

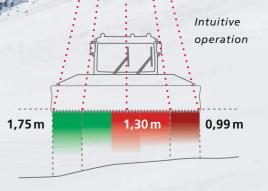
In addition to numerical values, the snow depth is also represented graphically using colored gradation from green to red.

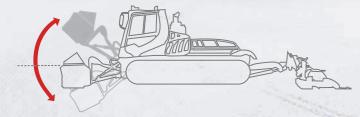


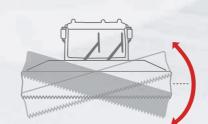
3-D model of the feature

03

Tipping forward







02

Lateral tilting



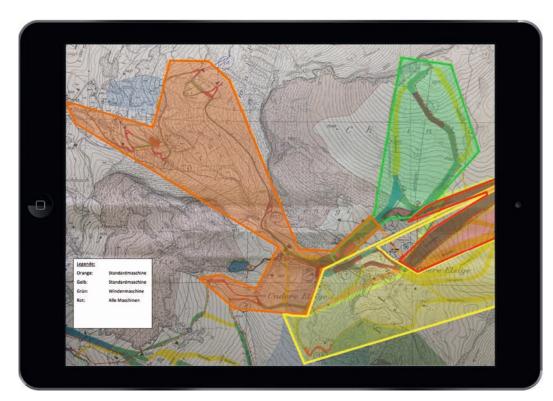
snowsat.com

27

Lifting and lowering







Recommendation for allocating the slope surface to the respective machines.

Great drivers – great slopes

PRO ACADEMY provides comprehensive guidance at Switzerland's Elsigenalp ski resort

Excellent training provides the basis

The fundamental philosophy of Dominik Honegger, CEO of Elsigenalpbahnen AG in the Bernese Oberland region, is to give his staff ongoing training. "Having the proper understanding for what they do also increases the quality of their work." His basic principle is to have the teams work independently in their areas. "We provide the framework, but it's up to the participants to take the initiative." Therefore, having good training is all-important. The training and consulting program of the PRO ACADEMY were precisely what was needed.

New insights for all

"The reaction to the course was something like a 'restrained euphoria,'" he says with a grin. "We have longtime slope groomer operators with tons of experience. This training is intended to 'scrape the inside of the jar' to unlock the last 15 % or so of performance that we need to be perfect!" And with his highly skilled presentation, Profanter has overcome everyone's skepticism. He has also put forth rather provocative theories about grooming activity on different parts of the ski slope. He documents these specific places with photos from the ski resort. "We discussed everything as equals – a good example of the open dialog that is part of our

corporate culture. In these training sessions, we all became aware of the extent to which all activities on the slope are related and how nothing can be viewed in isolation. I'm confident that everyone from drivers to myself as CEO has drawn new insights from the training course."

Insight is followed by implementation

Profanter has taken a detailed survey of the ski resort, documented and made recommendations for terrain corrections, for establishing the basic structure in fall and for pushing in snow. At the same, however, the instruction was focused on the working time models and the division of the machines.

"My primary goal is not to save money, but maximize the potential of our ski resort and the employees.
Good drivers work more efficiently and make good slopes. Guests visit more frequently when both the programs and the slopes are outstanding. I'm confident that all of this also has an effect on cost-efficiency over the medium term."

Dominik Honegger, CEO of Elsigenalpbahnen AG



The training courses are individually tailored to the ski resort.

"Florian proved to drivers that on a steep slope with a cross slope, for example, it is more effective not to push the snow upwards in the direction of the slope, but downwards using gravity." With his patient presence, he sits next to the driver and explains the optimal tiller settings and the operation of the blade and provides tips on how to give a slope the best appearance possible. "This was extremely well received, particularly among the younger drivers." Having this knowledge really changes the way drivers work. It makes them much more confident. "They tried it out for themselves right away – and the results on the slope spoke for themselves!'

Even the boss can learn something

What did he learn from this complete training session? "For myself as a 'non-driver,' the classes were highly informative. The discussions have enhanced my understanding of the real-world problems and concerns my employees face. This makes it easier for me to make certain decisions. I can use this new knowledge to further optimize certain procedures. In fact, I think I may have benefited the most!"

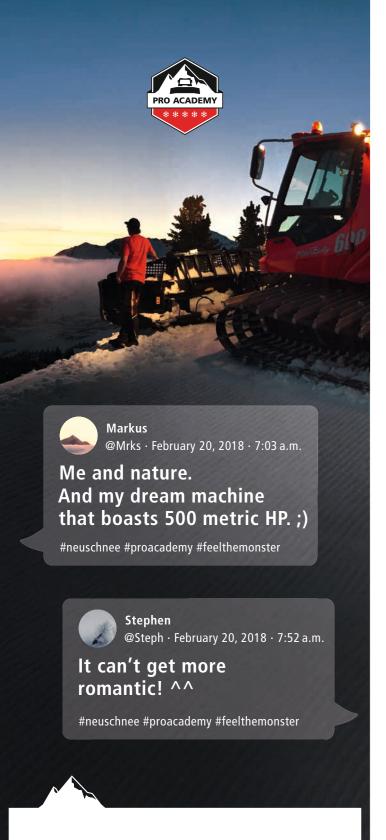
A tailored solution

The training and consulting program is a customized PRO ACADEMY offering. In addition to slope preparation for pros, the program specifically analyzes the ski resort, points out weaknesses and develops recommendations. The practical portion involves everything related to slope preparation. The theoretical part is primarily geared toward managers, snowmakers and the slope first aid team. A detailed project close-out report provides a straightforward summary of all insights and recommendations.

30

Kässbohrer - SNOW





Fulfill your dream and become a slope groomer operator. Your new career starts with the PRO ACADEMY online training.

Register. Complete the training. Receive a certificate. And thereby lay the foundation for a career as trained professional slope groomer operator. PRO ACADEMY's online beginner training provides you with valuable basic knowledge in the areas of vehicles, operators and slopes. Comfortably from anywhere. The decision of where and when you want to learn is yours alone.

Good to know!

The professional preparation and grooming of a ski slope is a science in its own right. Florian Profanter and his PRO ACADEMY team have gathered the most important tips and tricks and are presenting them in both this and forthcoming issues of the Kässbohrer Magazine.

The days are getting colder and the first snow is falling, telling us that it's time to start building the foundation of the ski slope. This first phase is extremely important. The more professionally you do the job, the higher the quality of the slope will be. And the fewer the follow-up costs that arise throughout the season – for snowmaking, for example.

"When preparing a ski slope,
you can do a lot right —
but a lot can go wrong as well.
It's a privilege to be able to share
our knowledge and experience
so that other
drivers can benefit from it."



Florian Profanter,
Director of the PRO ACADEMY

TIPS AND TRICKS FOR SLOPE PREPARATION

PART 01 LAYING THE FOUNDATION FOR THE SKI SLOPE

Preparation with the first natural snow

This foundation using the first natural snow has one clear goal: compacting the snow so that the soil can freeze and the snow can combine optimally with the substrate. This lays the foundation for the entire season.

TIP 01: Observe the minimum snow height

When working with the first natural snow, the snow level must reach a minimum height. Only if the level of snow is adequate will the grass cover be protected and damage to the machine avoided. The exact minimum snow height depends on the specific terrain.

TIP 02: Drive in a way that respects the machine

Because natural snow does not fall on a snow foundation, if the ground is not level, this has a direct effect on the snow groomer. The machine may suffer impacts that, in the worst case, can cause damage. So, drive in a way that respects the machine and prevents damage.

TIP 03: Let the downhill force be your friend

Because the snow height is still minimal, strong forces act on the substrate during the first snow grooming. A careful driving style protects both the grass cover and the ground from damage. One especially important note: Let the machine's downhill force be your friend when steering.

TIP 04: Pack all the snow

One of the most important rules for snow grooming: For a slope to be perfect, it must be prepared evenly. When building the base with natural snow, it is necessary to ensure that all the snow is condensed. Including the strip between the tracks.

Here's what you can look forward to:

In the next issue of the Kässbohrer Magazine, we'll continue our series of tips and tricks for slope preparation. Part 2 is then concerned with building the base of the ski slope using the first artificial snow.

Interested in topics concerning slope preparation and grooming? For detailed information about the PRO ACADEMY manufacturer-independent training programs, refer to:



Why we go back to school for our customers

Albert Arbogast (AA), Training Manager at the in-house Kässbohrer PRO ACADEMY. talks to Kässbohrer Magazine (KM)

KM: Thanks for talking to us today, Mr. Arbogast. Let's start by asking a question that's on the minds of many readers: Do in-house training sessions at the PRO ACADEMY also have an effect on Kässbohrer's customers?

AA: They sure do. Top-trained employees can diagnose faults and errors with greater precision and repair vehicles more quickly. That way, they get the vehicles back up and running sooner. In addition, well-trained service employees pass their skills and knowledge about the vehicles on to customers. Slope maintenance becomes more efficient, while costs for service and maintenance drop.

KM: To ensure that customers all around the world benefit from this expertise, a large group of Kässbohrer employees from around the globe come to Laupheim. What role does Laupheim play in in-house training and education?

AA: Laupheim is the headquarters of our in-house PRO ACADEMY. This is the central location for our professional training and education efforts. Each fall, 150 Kässbohrer employees are brought up to speed with the latest information. The sessions are attended by Service Managers, Plant Managers, workshop personnel and outside sales employees from as many as 21 countries. Some live and work around the corner, as it were - in Germany, Austria and Switzerland. Others work around 7,000 km further east, in countries such as China.

KM: What do the participants take away from the courses? And what can they pass on to their customers?

AA: The central topic is the latest generation of Kässbohrer vehicles. Including all components, from the hydraulics to the winch. As well as the latest relevant developments in products and details about the innovations for existing vehicles. Ultimately, the core of everything we focus on truly has some relation to participants' work. What counts is the clear real-world relevance. For example, diagnostic tools, new control concepts or settings that can be configured on the new iTerminal.



AA: Yes, absolutely. One example is the new emissions level for Kässbohrer vehicles. Content like this supplements the other material. Just like providing general information about the market and company situation and introducing special tools.

KM: In what languages are the training courses given to the students? How long do they take?

AA: We have six German-speaking courses. These classes are taken by about 100 students. There are also classes in English that attract about 50 employees on average. The training sessions in September and October take two days each. They serve as an ideal platform for exchanging information internationally.



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Higher Tech

All the boxes checked: An overview of the highlights of the new PowerBully 18T



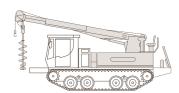
The technical data provide impressive proof that the PowerBully 18T is truly packed full of power. With an engine output of 310 metric HP (305 HP), it can shoulder a payload of 16.6 metric tons (18.3 US tons). In doing so, it can cross waters up to a wading depth of 1,400 mm (4.59 feet) and master slopes of 60 %. All with an impressive (for its vehicle class) maximum speed of 13 km/h (8.08 mph). In short, it gets around quickly everywhere, regardless of terrain. It relishes tough jobs that others can't handle. Accordingly, the PowerBully 18T is a suitable mobile platform for numerous applications. These range from maintaining the electrical and telephone lines to work on oil and gas pipelines to civil protection and disaster control.

Customers were won over by the all-around talent's official introduction at the EUFMC, the trade show for energy utilities' fleet managers. In particular, the cab features, engine output and X-Track track impressed the crowds. Customers can trust the excellent operating safety, robust design and good availability of spare parts and technical support of the PowerBully 18T.

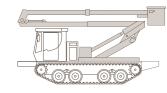
Drivers will be delighted by the reliability and safety of the machine and the convenient, intuitive operation, while mechanics will love the easy access to the components and fast spare parts supply.

In short, the PowerBully 18T, which is being produced in Laupheim as of fall 2018, meets all these requirements.

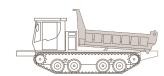
Body work



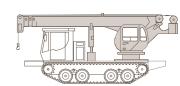
• Drilling cranes



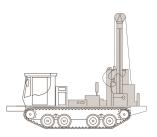
Lifting platforms



Tipper



Cranes



Vertical drills

Fields of application

- Electric utilities
- Oil & gas pipelines
- Civil protection and disaster control
- Mining
- Forestry
- Construction industry
- 🕶 etc.



On the job protecting against forest fires

Michigan has upgraded to two new PowerBully 5T FireFighters

Minimizing damage and cutting costs

Last year, fighting forest fires in the US cost more than 2.5 billion dollars. This made 2017 the most costly firefighting season in history. More than 4 million hectares of forest burned throughout the country. State-of-the-art equipment is essential to fight such fires effectively. Michigan is now home to two new PowerBully 5T FireFighters that keep its forests safe.

Modification to the FireFighter

The Forest Fire Experiment Station (FFES) develops special equipment for fighting forest fires. Two PowerBully 5T FireFighter units are currently in its workshop. The Michigan Department of Natural Resources (MDNR) was looking for a strong tracked vehicle that can transport firefighting equipment, has a large water tank and can pull firebreaks across the terrain. PowerBully meets these requirements. The FFES took care of the equipment with special pump control systems, hole rewinders and storage shelves for tools – and, most notably, by building a 3,000 liter (793 gallon) water tank. As soon as the firefighting water is used up, special water lines can draw replenishment from a nearby river or lake. Forest fires can spread quickly, even in marshes if it is sufficiently dry there. Therefore, the two PowerBully 5T machines are also equipped with hydraulic 13.6 metric ton

winches (14.99 US tons). They are at the ready in case the vehicle (or another vehicle) has to be pulled out of the mud.

Daniel Munn from MDNR says, "The FFES is primarily concerned with providing our fire department personnel with an optimally equipped machine that is absolutely capable of fighting fires, particularly in the rough offroad terrain and on poor ground. The PowerBully 5T FireFighter is the perfect platform."

"This report has been developed for the guidance of member States, Provinces, Federal Agencies and their cooperators. The National Association of State Foresters and the State of Michigan assume no responsibility for the interpretation or use of this information."

"The use of trade, firm or corporation names is for the information and convenience of the user. Such use does not constitute an official evaluation, conclusion, recommendation, endorsement or approval of any product or service to the exclusion of others, which may be suitable."



Daniel Munn (right) of the Michigan Department of Natural Resources (MDNR) and Bill York (Kässbohrer All Terrain Vehicles)







The firefighting equipment is designed using a 3D CAD program.





Benjamin Sinnl Head of the Business Unit Utility

"The PowerBully 18T enables us to offer our customers the most state-of-the-art track utility vehicle on the market. When developing the vehicle, our engineers focus on our customers' needs. We placed great value on safety and comfortable, convenient operation for the driver. The easy access to the components makes it possible to carry out maintenance work smoothly.

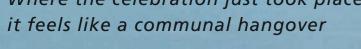
The frame of the PowerBully 18T is designed such that attachments can be installed using the QuickMount chassis quickly and easily.

The robust design is the ideal preparation for jobs in difficult conditions.

In addition, with the Kässbohrer service network, we offer our customers around the globe a fast supply of spare parts."



The morning after Where the celebration just took place,





The aftermath of the party

The day after, the city is silent. There is hardly anyone on the streets. Bars and stores are closed as Barcelona recovers from the previous night. Only the municipal cleaning contractor keeps working. Because many people will be hitting the beach later to relax. Everything has to be ready for a restful day on the waterfront as early as late morning.



The cleaners arrive

Jorge Gonzalez and his colleagues are just a few of the 850 employees of URBASER SA. The company contracts with the city's administration to keep some of the beaches of Barcelona clean. At 4:30 a.m., Jorge shows up for work with about 300 of his colleagues. A quick meeting to talk about the job, splitting up into groups, distributing food – then everyone zooms off. Some are equipped with brooms and garbage bags, while others drive street sweepy machines. Jorge climbs into one of the fleet's ten BeachTech beach cleaners and sets off for Nova Icària, an urban beach in central Barcelona.



A stellar performance

4.2 kilometers of sandy beach. Cans, bottles and fire pits as far as the eye can see. And only five hours to clean it all up. Needless to say, this job is out of the ordinary, even for Jorge and his experienced colleagues. "At San Juan (the local name for the holiday) alone, 20 tons of trash have to be carted away. The BeachTech 3000 is made for precisely this purpose. With its load volume of 4.7 m³, it can move a huge amount of waste before unloading. Despite the large quantities, we don't have to go to the dump as often to unload. This makes work easier and saves a whole lot of time."



Everything looking like new again

At 10:00 a.m., the beaches of Barcelona are sparkling clean – from the Playa de San Sebastiàn to the Platja de Llevant – in the usual golden look. The sandy beaches and promenades are clean and the garbage cans are empty. Jorge and the others return to headquarters. There, they talk about the finished job and share a late breakfast before dropping into bed, completely exhausted, at home. Some recover from the strenuous work on Barcelona's beaches.

• load volume 2.8 to 4.7 m³
• Duration Total of 5 hours

4 Beach area 263,500 m²

drivers, mechanics and

service employees

Personnel approximately 300 workers,

• Fleet 10 BeachTech 2800 and 3000

The job in figures:

Upgrade at the beach

BeachTech 2800 becomes BeachTech 2500

Our all-round talent, the BeachTech 2800, has been given a thorough general inspection. The BeachTech team has surveyed the customers and listened carefully to, and analyzed, their feedback.

In implementing the design, the engineers made it a point to concentrate on the inner values. A few resounding improvements were the result.

Hydraulic system • Internal and protected

Waste container

- Reinforced design
- Sophisticated fixing mechanism for high stability without sideways movements
- Better application of force

LED lighting

"We have worked intensively with the individual components." This process generated a vast number of new ideas, which we have now implemented in the BeachTech 2500. Even a good product can be made even better!"

Patrick Zwickel, BeachTech developer

Shaft flanges

• reliably prevent jammed rocks

Operating-hours

• Hydraulic

Remote control

- Simplified handling: only 1 dual-action circuit of the auxiliary tractor hydraulics (in standard operation)
- Improved operation: easy to understand, clearly assigned



Pick-up engine

• Improved sealing to protect against

Patented, innovative composite screening belt

- No elongation, increased service life:
- Longer service life: Through minimized material wear
- Easier handling:
- Tension fixture no longer required
- Improved screening belt guidance: through drive wheels



Finisher and kinematics

• Complete overhaul • Modified finisher position • Simpler unloading through optimized kinematics • Adapted hydraulics Unloading height 2,680 mm: Thanks to new hinged function

46 47

Axle support

service work: the

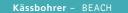
new axle design

No buildup of

sand or rock

on the axle

• More room available for





BeachTech stands for reliability

BeachTech is a global company with more than 500 employees and 50 years of experience in vehicle construction. Some 30 colleagues around the world work on BeachTech, which goes back almost 30 years. In addition, dealers are directly on site in over 40 countries around the globe. BeachTech is the product of a team that is completely and entirely reliable.

What started as a crazy idea in 1991 has become a firmly entrenched part of the industry. Kässbohrer beach cleaners are an institution wherever people value well-maintained beaches.

Number One in technology and support

BeachTech is an impressive success story. In the 1990s, the beach cleaners from Southern Germany quickly took the whole world by storm. This is not surprising – from the very beginning, BeachTech benefited from the experience of the PistenBully's success. Developing a superior vehicle and consistently expanding the product range. Making use of the existing sales and service structures.

Offering reliable support. And always evolving the products.





The consolidation with US-based manufacturer Cherrington last year was another milestone in our beach cleaner history. For example, the Cherrington 440 XL closes a gap in the BeachTech product line in the off-beach area. This model has already been providing value for a long time at horse arenas, seedbeds and water filtration retention ponds. The BeachTech team now includes some 30 employees in all areas, including everything from production to global sales and customer service to the design department. Promising future



Close to the customer

BeachTech and PowerBully in the southeastern US

To provide even better service the southeastern US, Kässbohrer has now also established a spare parts and service center in Cartersville, Georgia, about 1.5 hours north of Atlanta. With a thousand square meters of space, the facility is more than capable of handling requests for vehicles and spare parts at any time.

Georgia is also known as the "Peach State". Indeed, Georgia peaches are prized around the world for their top quality. This also applies to BeachTech, Cherrington and PowerBully. The Georgia landscape dense forests, swampland and exceptionally beautiful beaches. Perfect terrain for the BeachTech and Cherrington beach cleaners and our PowerBully utility vehicles.

"Now we are located very close to our most important customers and can offer optimal service, helping them to get the best out of their vehicles," explains Scott Merrill, Vice President of PowerBully and BeachTech.

Of course, all spare parts for PowerBully, BeachTech and Cherrington are available in the online service portal.



Kässbohrer - BEACH



Do it yourself

With Kässbohrer Composites GmbH, we are bringing the production of PistenBully components back home. This is optimal for lasting quality on the highest level.

And for even greater order fulfillment.

The bottom line already in effect: one new Kässbohrer company, two clear benefits for customers.

Insourcing – the new Kässbohrer division increases flexibility and assures quality and supply reliability.

Since acquiring Kässbohrer Composites in April 2018, Kässbohrer Geländefahrzeug AG has been less dependent on the supplier market. This acquisition starts on the best possible terms – the Kässbohrer Composites GmbH employees posses decades of experience

These specialists create components from composite fiber materials: These consist of resinimpregrated glass or carbon fiber (GFK/CFK). Both are extremely rugged and resistant. Thus they are perfectly suited to the rough PistenBully environment and the tough conditions drivers and vehicles face every day.

After the successful start, the division will produce additional PistenBully components, added step by step.





Digital concepts

loading...

In pursuing the goal of digitalization, Kässbohrer insists on close dialog with its customers

Digitalization is a front-burner issue for all companies, and Kässbohrer is no exception. Our goal is clear: to offer our customers sophisticated solutions to digitize operations and to set the pace in our industry. This is possible only with long-term strategies and concepts beyond mere digital trends.

That is why we use the structured process of "Design Thinking" and start where all of our developments originate – our customers' real-world

needs. We ask ourselves as a group which digital solutions are really useful and where will they have the largest positive impact. For example, what kind of impact would digitization have on operating a ski area economically, delivering spare parts or maintaining a PistenBully? We take into account all relevant levels on which digitalization is effective, including everything from linking and evaluating relevant information, taking advantage of the possibilities of transparent and fast communication

to implementing digital components in machines and vehicles.

In short, the intensive dialog with our customers is determined by the basic questions of meaning, purpose, and effort. We take the time necessary to do it right – in meetings and workshops with executives, owner/operators and engineers.

There are many reasons to look forward to the digital solutions Kässbohrer provides.



Welcome to the fun pages!

"Hello there! I'm little Bull.

I got my name from my big brothers.

The whole world calls them "PistenBully,"

because they pack the snow at thousands of ski resorts.

I live right here on these kids' pages.

Here, I provide all you need to have fun painting and solving puzzles."





"Something's wrong here!

These pictures look the same at first glance. But are they really? There are ten differences between them. Can you identify them?

For the answers, turn to page 57."



Now, just for you, there are PistenBullys that fit into any oven and taste great to boot. Just follow the easy recipe printed here. Remember that for your cookies to look like a PistenBully, you need the right cookie cutter. You can get one from our online shop. You can also get our lovely Christmas tree ornaments.



250 g flour 125 g butter

125 g sugar

1 serving of vanilla sugar

4 egg yolks

Sugar icing, food coloring and/or coating for decoration.



Instructions

Mix the ingredients using a mixer, then knead them with your hands until you have flat dough. Shape the dough into a ball, wrap it in plastic foil, and refrigerate it for at least half an hour. Roll the dough flat on a flour-coated work surface 2 – 3 mm thick, cut out the cookies. Cover a cookie sheet with baking pan liner paper and distribute the cookies on it. Bake in the oven for 200 °C for 10 min. After baking, decorate as desired.



"Why are there grooves in the snow?

Have you ever been to a real ski slope?

If so, you have certainly seen the many grooves in the snow. Do you also know what they are used for? You can enter your answer here right away.



Is your answer correct? If you put this page upside down, you will find out!"

It's hard to ski on fresh, deep snow. PistenBully machines can change that. When they drive across the snow, their large weight pushes the snow together and packs it.

The drivers of the PistenBully call this "compressing". At the same time, when driving, a tiller of the PistenBully excavates and smooths the snow. The grooves allow the snow to freeze better, in the snow. The grooves allow the snow to freeze better.

This makes it easier to grip and less smooth. Skiing is much easier as a result.



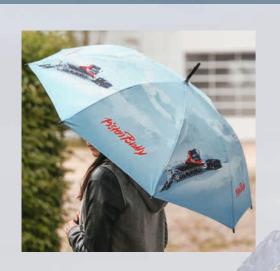
Send us a question about the snow or beach, along with a picture of yourself. You can end up on our Kids' Page. We're looking for the best question. Our address? kids@pistenbully.com





PistenBully shop

Christmas presents for true fans



AUTOMATIC
WALKING-STICK UMBRELLA
39,90€*



ASTER BOOK

FUNCTIONAL LONG-SLEEVE SHIRT 59,90€*



KNIT CAP 22,90€*

www shop.pistenbully.com

*Including VAT plus shipping costs



2019-01-16 to 2019-01-19 Alpitec.

Beijing, China

2019-03-02 to 2019-03-12

Winter Universiade, Krasnoyarsk, Russia

2019-05-08 to 2019-05-10

Interalpin, Innsbruck, Austria

2019-10-16 to 2019-10-18

ExpoAndes, Santiago, Chile



2018-11-07 to 2018-11-09

Congress Ecoplayas 2018, Hotel Zafiro Palace de Alcudia, Mallorca, Spain

2018-11-13 to 2018-11-15

103rd Annual League of Municipalities Conference, Atlantic City, New Jersey, USA

2018-11-20 to 2018-11-22

Salon des Maires, Porte de Versailles, Paris, France



2019-04-09 to 2019-04-11

Northwest Public Power Association (NWPPA), Spokane, Washington, USA

2019-04-30 to 2019-05-01

Canadian Utility Fleet Council, Toronto, Canada

2019-06-02 to 2019-06-05

Electric Utility Fleet Managers Conference (EUFMC), Williamsburg, Virginia, USA

2019-10-01 to 2019-10-03

International Construction Utility Equipment Exposition (ICUEE), Louisville, Kentucky, USA





Join in and send us your coolest pictures!

PistenBully is turning 50 next year! For this anniversary, we are looking for the most extraordinary photos involving the red snow groomer, whether they are of tattoos, cakes or wedding photos. All that matters is that they be crazy or funny. We'll publish the best ones!

ideen@pistenbully.com

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Kässbohrer - SHOP

"Everything begins with our customers.

We listen to them intently.

We ask them what their wants and needs are. And develop solutions with genuine benefits and clear advantages.

For ski areas, beaches and rough terrain.

This is the distinguishing feature of a Kässbohrer product."











