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**Bosch innovations for your home**

Speech by Henning von Boxberg,

President of the Robert Bosch Power Tools GmbH

**Bosch innovations for productivity and safe working**

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on the occasion of the press conference

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Check against delivery.

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Ladies and gentlemen,

In the introduction to “Design Thinking”, you have learned how we systematically research the needs and desires of our users, and focus on these when developing products and services.

With our “Design Thinking” approach, we serve all user groups: DIY enthusiasts on the one hand as well as professionals on the other. The requirements of these target groups are very different. For DIY enthusiasts, their own four walls take precedence – the house they want to feel at home in, their garden. We give them the suitable tools to shape their home according to their needs and desires: Bosch innovations for your home.

There are many different kinds of DIY enthusiasts – from the aficionado who implements ambitious projects with a lot of experience and passion and would rather do it all themselves, to the hobbyist who enjoys individualizing their home with loving details such as a self-crafted chair and giving their creative spirit freedom to roam. What they all have in common is a desire to beautify their home and improve their quality of life – according to their own ideas and especially with their own hands. In the future, we will not just cater to DIY enthusiasts but also appeal to new target groups based on user requirements. You will find Bosch power tools in different areas of life – more on that later.

We put ourselves in a DIY enthusiast’s position to inspire and motivate them – and, of course, offer them the perfect tools to create a “Home made by you”. Our innovations make DIY simple.

### **Simple and reliable detection for safer drilling**

An easy-to-use detector for safer drilling – our UniversalDetect. It is the first digital detector for DIY enthusiasts that is controlled via a touchscreen and guides the user through each detection job with step-by-step instructions. This makes work simpler and largely eliminates operating errors. The user

can focus all their attention on detection – calibration occurs automatically and leads to reliable measurement results.

The UniversalDetect is designed for detecting metal, live cables, and drywall constructions – enabling you to avoid damaging existing wires and cables and to drill precisely into drywall constructions that are concealed in the wall. This can help when fitting wall-mounted cabinets, for example.

Even when starting up the tool, DIY enthusiasts receive a short introduction and invaluable advice. Take searching for live cables as an example: To detect them more easily, users should apply power to the cable or place their hand on the wall to ground it. The results are displayed on the screen, via an acoustic signal, and through an illuminated LED ring, which uses a traffic light system to show the detection result. That's how simple detection can be!

### **New Zamo generation more flexible than ever before thanks to adapters**

You already encountered the new Zamo in our introduction to “Design Thinking”. Deriving from user requirements, we developed a measuring tool that is far more than just a classic laser measure: Now, it not only measures distances of up to 20 meters but also freestanding objects, uneven surfaces and curves very simply. The Zamo, just like the Ixo in its time, gains its high level of flexibility from various adapters: Tape, wheel and laser line adapters. The tape adapter transforms the tool into a digital tape measure which can be used to determine short distances of up to 1.5 meters in a matter of seconds. The Zamo is particularly nimble with its new wheel adapter. It looks a bit like a pizza cutter, gliding smoothly along anything you might need to measure, even if its surface is curved. The new laser line adapter turns the laser point into a laser line which can be used to simply align objects: For example, you can place the Zamo on a tabletop or a pile of books and align the adapter using two levels like any standard spirit level. Then you're ready to hang up picture frames or shelving while keeping them straight. As well as measuring distances, the Zamo can also calculate surface areas on request.

### **“NanoBlade” technology makes sawing easier**

You might remember: Last year, we presented the world’s first “NanoBlade”. This technology enables low-vibration sawing as well as plunge cuts without pre-drilling. It is based on a saw blade with a revolving micro-chain which consists of chain links four millimeters in size. The revolving micro-chain means that the stroke movement which is typical of jigsaws and saber saws, featuring high vibrations and saw blade running, is no longer required. Even inexperienced DIY enthusiasts can use it to saw particularly simply and precisely. Thanks to the new SDS, replacing saw blades is also quick and easy. The range includes the 12 V EasyCut 12 multi-saw, which is especially suited to freehand cuts, and the corded EasyCut 50 and AdvancedCut 50 models, which are designed for exact cuts and plunge cuts.

Now, we are also making “NanoBlade” technology available to our 18 V battery system: The AdvancedCut 18 is suitable for both indoor and outdoor use. It saws wood as well as plastics and composites quickly and powerfully. The optimum coordination of motor and gearbox in combination with an intelligent electronic system called the “Syneon Chip” is the reason it can cut 250 roof battens with a size of 24 x 48 millimeters to length on a single battery charge. The AdvancedCut 18 is also well balanced and, thanks to its compact design, can be conveniently guided with one hand. This is enabled by the brushless motor. It occupies less space, has a longer lifetime and does not require any maintenance.

### **AdvancedDrill 18 and AdvancedImpact 18 for working conveniently**

The cordless AdvancedDrill 18 drill driver and the cordless AdvancedImpact 18 impact screwdriver are even easier to operate than previous models. Their intuitive operating concept makes them more convenient to work with. Just one click electronically changes the rotation direction of the screwdriver – both on the right and left-hand side of the tool. The selected setting can be conveniently viewed via green LED arrows on the back of the tool. The forward arrow indicates forward rotation, the backward arrow signifies reverse rotation. If the tool goes unused for a prolonged period, it automatically

switches back to forward rotation and therefore the main application. In addition, both tools use self-explanatory symbols to display the correct mode – screwdriving, drilling and also impact drilling in the case of the AdvancedImpact 18. Pre-selecting the speed is also easier: It can be continuously adjusted via a minimum-to-maximum scale. This minimizes application errors and simplifies the life of DIY enthusiasts.

With a weight of only around one kilogram and an ergonomic handle, both screwdrivers fit comfortably in your hand. This compact design is made possible by the brushless motor. Furthermore, both screwdrivers offer additional flexibility thanks to the tried-and-tested QuickSnap adapters: You can use the tools in conjunction with a drill chuck, an eccentric adapter or an angle screw adapter, allowing you to work with precision even in hard-to-reach areas. A new feature is the magnetic screw holder that can be attached to the QuickSnap interface instead of the interchangeable adapters. This makes inserting and turning in screws more simple.

### **Compact cordless screwdriver for the trouser pocket**

Our PushDrive cordless screwdriver also contributes to making screw fittings easier and more convenient. It is the ideal tool to quickly drive in a screw or access a tight corner. Just slightly larger than a classic manual screwdriver, the cordless screwdriver fits easily into your trouser pocket and is therefore always at hand. Thanks to the Push&Go function, the PushDrive offers convenient handling without the need to press a switch: Simply position the tool with the screw against the workpiece, put slight pressure on the cordless screwdriver and it's ready to kick off powerfully. Its design makes the compact and convenient PushDrive especially suited to making screw fittings from bottom to top, such as when fitting worktops or wall-mounted shelves.

The torque selection feature of the new cordless screwdriver ensures more control while working as well as consistent screwdriving results. A total of six different settings are available. If the switch is set to the middle position, the

bit holder becomes locked so that the PushDrive can be used like a classic manual screwdriver. This way, DIY enthusiasts can fine-tune the screws.

### **Ixo – the world’s most popular power tool turns 15**

We are as proud as ever of our Ixo: Slotted, cross-headed and Torx – in letters I-X-O – with a name inspired by these three screw types, the Ixo set out to conquer the world 15 years ago. The cult status among DIY enthusiasts is owed to its handy ever-ready feature combined with its small size, convenient design and intuitive operating concept.

The Ixo has spruced itself up for its anniversary in a limited edition as Ixo Gold&Black. With its elegant black design, decorative gold line and fabric label, which also shines golden for the special occasion, we are underlining the unique status of the Ixo once more. The Ixo is the most popular power tool in the world. It has been enriching homes with its versatility for 15 years: Driving screws around corners, opening wine bottles, seasoning dishes, firing up the coal on a barbecue, cutting various materials and even trimming grass and shrubs – the Ixo can do all that and more. Now, it screws more beautifully than ever in its gala robe.

In the same way that the Ixo found many friends outside the sworn-in DIY community, we are also always trying to tap into new target groups with our innovative products – such as creative starters who feel most at home when crafting and decorating. This too falls under “Home made by you”.

### **Give your creations a hot new look: The Gluey hot glue pen**

Our Gluey hot glue pen is perfectly tailored for these creative starters. It is ideal for spontaneous ideas as well as more time-consuming projects: Design unique greeting cards decorated with rhinestones, buttons or cords, capture moments in scrapbooks with shells or tickets, create wrapping paper perfectly suited to the occasion – the Gluey can do all this and much more. It is comfortable to hold, glues paper, textiles, plastic, cardboard, wood, stone, glass and leather in seconds and does not even stop at uneven surfaces. The

Gluey requires mini glue sticks – the range available includes transparent, colored and glitter glue. Gluey models stand out in five radiant colors: Lagoon Blue, Marshmallow, Smoky Grey, Evergreen and Cupcake Pink. In this way, it makes its message clear: I am not a power tool, I am an extended arm for your creative ideas.

Operating the hot glue pen is very simple: Switch it on via a button on the end of the tool and insert the glue stick of your choice. After a maximum of 60 seconds, a green LED ring will indicate that it is ready to use. The adhesive is then simply pushed forwards by a slider and can be metered precisely and in a controlled manner. There are no limits to creativity – the new “Home made by you”.

### **Window cleaning made easy with the GlassVac cordless window vacuum**

In the future, you will also find Bosch power tools in different areas of life – in the household for example. This too falls under “Home made by you”. Take our GlassVac cordless window vacuum. It cleans quickly and without squeaking or leaving streaks – for the wiper blade, we use existing Bosch expertise from the automotive sector. The wiper blades have innovative rubber strip technology with a polymer coating, which until now had only been used for windshield wipers from Bosch. This is one example of the kind of beneficial synergy that is only possible at Bosch. The wiper blade glides effortlessly over surfaces because it generates very little friction. The wiper lip is also very robust and durable and lasts longer than conventional rubber lips. The GlassVac is the most compact tool on the market: At a height of only 22 centimeters, it is shorter than equivalent competitor models and can therefore vacuum up to all edges and into all corners more easily.

### **Sensible systems make work easier**

We are meeting the need to make work as simple as possible with our system approach. Our “Power for All” battery system, which covers DIY and garden tools, has already proven successful for a long time and is being continuously expanded. The same 18 V lithium-ion battery will soon be used

to operate more than 25 different power tools, from rotary hammers to grass trimmers. In this year alone, we are adding seven further tools, among them our “NanoBlade” saw and a battery-powered high-pressure washer. You only need one battery and one charger for each volt class. This enables you to do without batteries and chargers that you do not need, and you can save money at the same time. This is what we call “combining with a system”.

### **Maximum runtime, thanks to the “Syneon Chip”**

Another advantage of our cordless tools: They enable up to 85 percent more applications than comparable competitor models. This is based on optimum coordination of key components such as the motor and gearbox combined with an intelligent electronic system called the “Syneon Chip”. This always offers DIY enthusiasts the maximum runtime for each project. For example, the PSR 18 LI-2 cordless drill driver allows you to drive up to 60 percent more screws per battery charge and drill up to 80 percent more holes than with comparable competitor tools. Furthermore, our tools maintain full power until the battery is empty. This allows DIY enthusiasts to continue screwdriving, drilling, sawing, grinding or even cleaning the terrace at full capacity until the battery is empty.

And we go one step further: In the future, our battery system for DIY and garden tools will also include household appliances such as vacuum cleaners. Here too, we use synergy within the Bosch Group to be able to meet our users’ needs even better: Something only Bosch can do.

### **Tools, accessories and materials combined in a SystemBox**

In the future, DIY enthusiasts will also be able to implement projects simpler and faster with our SystemBox range. What’s behind this? With the SystemBox from Bosch, you have your tools, accessories and any materials you need to hand at all times. The new stackable storage and transport system clearly organizes everything that is required to carry out preparatory and follow-up work for projects while saving time. The SystemBox is available empty



or already equipped for the three most common DIY tasks: Sawing, drilling and screwdriving as well as working with multifunction tools.

The SystemBox is transformed into a mobile sawing station when combined with the PST 700 jigsaw: The “Sawing” SystemBox simply guides inexperienced users to cut cleanly and with the correct sawing technique – it provides everything that is required for sawing and supplemented by step-by-step instructions. In addition to the jigsaw, the box contains two clamps which can be used to quickly and simply transform the box into a workbench for clamping the workpiece. With three different saw blade types and additional equipment such as a pen, an angle, crepe tape, a folding rule and an anti-slip mat which is placed under the SystemBox when sawing, DIY enthusiasts are ideally equipped for a variety of sawing projects, while saving space and time.

With the “Screwdriving and drilling” SystemBox, DIY enthusiasts are perfectly equipped and ready to go with a powerful cordless drill driver or combi drill as well as bits, screws, plugs, brass hooks, drills for metal and masonry, spade drills and countersinks – everything you need for screwdriving, drilling and fastening.

With the “Multifunction” SystemBox, DIY enthusiasts are well-equipped for a wide variety of tasks. The multifunction tool is supplemented by four application-oriented accessory sets: one for using the multifunction tools as all-rounders, one for installing and renovating wooden floors, one for sanding tasks and one for projects involving tiles and grout. One accessory set is included in this SystemBox, the other three are available separately. In this way you can select only the accessories you really need, while saving money.

**This is how we communicate: The new online magazine [allaboutdiy.com](http://allaboutdiy.com)**

We communicate with users in many different ways: Via our specialist Bosch advisors at DIY stores, on our website, via our newsletter, Facebook and YouTube as well as in our DIY forum [1-2-do.com](http://1-2-do.com). But we want to do even more: We want to be a reliable companion who is always there for DIY

enthusiasts, inspiring them, helping them with constructing exciting projects and imparting knowledge in a simple and comprehensible way. This is why we set up the new online magazine [allaboutdiy.com](http://allaboutdiy.com). Every DIY or garden enthusiast can find beautiful, practical and even strange things – new inspiration and ideas to spur on their creativity. Projects such as constructing a shelf from wooden slats, making your own clock or building a chest of drawers are described clearly. In the DIY school section you can learn to work expertly. There you can find materials science, tips and tricks and many simple but precise instructions for wonderful projects you can try building, gardening or crafting yourself. What tools are used for which tasks? What material is suited to which project? And how do you drill a decent hole in the wall? Answers to these questions and many more tips, tricks and trends can be discovered at [allaboutdiy.com](http://allaboutdiy.com). Have a little look and get inspired!

Ladies and gentlemen,

Now that I am drawing my speech to a close, let me sum up the most important points for you once again:

- Thanks to “Design Thinking”, we are familiar with the requirements of our users and develop solutions that make work easier for them.
- We invest in battery systems such as “Power for All” for various kinds of DIY and garden tools – and soon household appliances as well.
- We use synergy within the Bosch Group to provide users with even better products.
- Not only do we consistently develop existing segments, but we also tap into new target groups.

Now, Henk Becker will present the innovations for professionals.

Ladies and gentlemen,

Tradespeople have different needs from those of the DIY enthusiast. They have to deliver high quality in a very short time frame. Only in this way can they hold their own in the face of competition. At the same time, occupational health and safety plays an increasingly important role. Our aim is to provide professionals with tools that are safe to use and will increase productivity in their day-to-day work.

We continue to expand our range of products based on user needs. I would like to introduce you to four key aspects today. These are: High-performance cordless tools, intelligent products and services, our solutions for a high degree of occupational health and safety, as well as accessories, which turn a tool into a complete system.

A growing number of professionals are relying on cordless tools. The total market share of cordless tools when looking at professional power tools in industrialized markets has increased by nine percent on average in the last ten years. In 2017, they already accounted for 64 percent. This trend will continue in coming years. Why? Cordless tools high mobility on construction sites without long set-up times – tradespeople can start work immediately. They are fast and flexible which leads to higher productivity. But only with the right power source.

### **A new performance class: The ProCore18V battery series**

That is why we are relying on high-performance batteries. With our new ProCore18V series, we are entering dimensions of performance previously reserved for mains-powered tools. We are committed to offering the smallest, most compact and most powerful batteries on the market – all in one battery system. That is what really sets us apart from the competition.

We have revolutionized 18 V battery technology and can offer professionals the perfect high-performance battery for any application: Whether “Compact”, “Performance” or “Endurance” – we are providing tradespeople with the bat-

tery that best supports them with their specific task with regard to size and runtime.

Our “Compact” 4.0 Ah ProCore18V battery is single-layered thanks to new, higher-capacity cells. As a result, it is significantly smaller and lighter than the standard two-layered 4.0 Ah battery – while providing the same performance.

Our “Performance” 8.0 Ah battery offers around 90 percent more power than standard batteries of its size. It can be used for applications that were previously only possible with mains-powered tools. With existing tools, it increases performance by up to 30 percent. In the case of the GWS 18V-125 SC Professional angle grinder, this means a 30 percent higher material removal rate when grinding with a flap disk compared to our standard 6.0 Ah battery – in the same amount of time. The “Performance” 8.0 Ah ProCore battery also offers impressive results in continuous use at the limit: Our GBH 18V-26 Professional rotary hammer drills two and a half times as many holes with a diameter of 25 millimeters in a concrete wall than with the standard 6.0 Ah battery.

Another example of continuous use at the limit is sawing a 40 millimeters thick hardwood board – a big task for our GKS 18V-57 Professional hand-held circular saw. With the ProCore high-performance battery, it saws two and a half times the distance compared to the standard battery – without interruption.

For especially intensive applications, such as chiseling with a cordless rotary hammer or sanding down large weld seams with a cordless angle grinder, we recommend our “Endurance” battery. It is the first 12.0 Ah battery on the international market and therefore offers the highest battery capacity among its competitors.

In short: Our ProCore18V batteries offer up to 90 percent more power while simultaneously being the most compact high-performance 18 V batteries on the market. “Compact”, “Performance” or “Endurance” – tradespeople are flexible and can select the right battery size and runtime for their requirements. They do not have to carry unnecessary weight and only pay for what they actually need.

In addition, we are making sure that our lithium-ion batteries are compatible with all existing and future power tools in the same voltage class – there are no exceptions. You can operate our drill driver from 2008 with the exact same battery as our latest FlexiClick screwdriver, available from May. That is what we mean by added value for the user – and what sets us apart from the competition.

For us, the cordless segment is an important growth area which we are consistently expanding – we are launching innovations that fulfill our users’ needs. Since last year, we have launched more than 25 new cordless tools, including the first Bosch hammer with active integrated dust extraction and the world’s first connectivity angle grinder with a user interface – for more productivity on the construction site.

### **The fastest and world’s first connected charger for 18 volts**

Our new ProCore series also fulfills the demand for fast battery charging: Thanks to new technology, we have made charging times even shorter once again. A brief look back: In 2015, we introduced the GAL 1880 CV Professional charger, already creating a new standard: With a charge current of eight amperes, it was the fastest charger on the market, making us charging world champion. We are now surpassing that achievement with the new GAL 18V-160 C Professional. Our flagship for a new generation of chargers provides 16 amperes of charging current, which doubles its charging speed. For example, it now charges the 12.0 Ah ProCore18V to 80 percent in less than 40 minutes. In addition, the charger is the world’s first with a connectivity function. Tradespeople can easily connect it to their smartphone using the

Bosch Toolbox app, making information such as the remaining charge time and general battery condition available. In addition, they can choose between four different charging modes – from a very gentle mode to protect the battery, through to superfast charging. For example, in the “Power Boost” mode, the battery can be half charged in a very short time, allowing tradespeople to continue working faster on the building site. Our contribution to productivity.

### **Increased productivity thanks to intelligent products and services**

Our new charger is already an example of an intelligent, connected product. Let me explore this topic in more depth. We are convinced that connectivity functions can increase the productivity of a company as well as each individual tradesperson. Our range covers everything from organizing and managing a business to using, servicing and maintaining tools.

Business owners, for example, can now keep an even closer eye on their tool stock levels thanks to the further developed “TrackMyTools” inventory management system. We have optimized the system based on user feedback. It automatically reminds tradespeople if a tool has been left behind on the construction site – which can save businesses a lot of money. But the system can do so much more: Business owners now have a complete overview of all the machinery and the fleet of vehicles, including purchase and maintenance receipts as well as warranty certificates. They know which maintenance intervals or MOT dates are coming up. They can assign vehicles to employees and allocate the corresponding tools to them as well. In addition, they can keep a record of important employee dates such as annual occupational safety training. That goes far beyond conventional inventory management. More than 1,000 companies in Germany already use “TrackMyTools”. We make it easy to get started: Companies can use our system with limited functionalities, for example without date management, free of charge and with no time limitations.

### **Error-free data transfer and simple documentation**

Of course, connected power tools from Bosch also offer added value for tradespeople on site. Let me give you three examples related to measuring tools. Firstly: Our new GLM 120 C Professional laser measure. It is equipped with a Bluetooth interface, allowing the measured values to be transferred directly to the Measuring Master app for further processing. This means that, for example, you can share measured data with colleagues, carry out material calculations, or create and adjust floor plans. The app also acts as a remote control for the laser measure, allowing measurements to be taken without blurring and without requiring any assistance from colleagues. Now that's productive!

Of course, connectivity functions are not the only feature that make our new laser measure special. The focus is on the requirements of the user: Previously, it was difficult to precisely identify the laser point in bright environments or over long distances. That is where the GLM 120 C Professional comes in: It is the first Bosch laser measure with an integrated camera. Users can use the cross-hair on the display to precisely aim for the target point – and, as a result, they can also precisely measure over large distances of up to 120 meters.

The display uses the same technology as smartphones: The LCD module is firmly connected to the glass surface, meaning that the light is not broken in the space between and is not reflected. The display can be easily viewed from every perspective – even from the side. This means that it is easier to read, in contrast to traditional laser measures, particularly when used outdoors.

### **Connected thermal imager for greater clarity and easier documentation**

We are also offering tradespeople the advantages of connectivity with our GTC 400 C Professional thermal imager. Checking that radiators and under-floor heating work evenly, detecting overheating in electrical installations or finding thermal bridges, energy losses and sources of air draft – all this is

simple to complete using the thermal imager. The thermal imager accompanies and assists tradespeople in every phase of their project: From advising customers with a visualization of the problem areas, to preparatory tasks such as inspecting where lines are installed, through to efficient documentation and follow-up work.

The advantage of connectivity: You can connect your smartphone or tablet to the tool and transfer the thermal images, including the measured data, to the Measuring Master app. With this app, the images taken can be edited directly and notes or information can be added – a solid base for determining required measures. In addition, the thermal images produced and the measured data can be passed on to customers, colleagues or other trades – efficiently and without delays.

Each of the 19,200 pixels in the saved thermal images corresponds to exactly one measuring point. The result is a detailed and conclusive thermal image. I would like to point out one function in particular at this time: The image-in-image function. This displays the thermal image within the context of the original image, which makes it easy to assign and locate measurements. It is these details which make work that much easier for users.

### **New line laser generation with connectivity function**

Connectivity functions also increase productivity when working with line lasers. Our new line lasers with red or green diodes are the first line lasers worldwide which can be controlled using an app and Bluetooth interface. Tradespeople can, for example, switch the individual laser lines on and off with our Levelling Remote app without touching the tool and mistakenly adjusting positioned laser lines. This increases precision. Furthermore, controlling using an app facilitates work in difficult-to-access areas. You can also conveniently adjust the brightness of the laser lines – for better visibility or to save battery power.



Both tools project three 360° lines: One horizontal and two vertical. The two vertical laser lines intersect and each provides a plumb point – one on the floor and one on the ceiling. With their three 360° lines, the lasers cover a wide range of applications – be it the dividing of spaces in dry construction, precision in tiling, or for furniture assembly and the installation of dividing walls. Multiple tradespeople are able to work on different areas simultaneously and therefore only need a single tool. That is our contribution to productivity and cost savings.

The GLL 3-80 CG Professional operates with green laser lines that are up to four times more visible to the human eye than the red laser lines on similar tools. This pays off in bright environments in particular. In addition, the green laser diode is more powerful in comparison with tools that use color conversion from red diodes into green light. It also has a longer lifetime thanks to its lower operating temperature and is more compact.

### **Cal Guard – a world's first: Bosch sensors monitor calibration**

Our new generation of line lasers also leads the competition in terms of servicing and maintenance. There are various external influences which can interfere with the calibration of the line laser and are not always apparent at first glance. For example, if the tool has been heavily shaken in a fall or stored at a temperature outside the permissible range of between -20 °C and +70 °C. This is where our world's first, the sensor-controlled Cal Guard, steps in: The tool displays these events via a red LED light that warns the user of calibration errors, thus ensuring precise results. The app provides users with detailed information about the warning, meaning that they always have an eye on the tool's calibration and can carry out all of their work with precision. The Bosch sensors monitor the condition of the measuring tool constantly, even when it is switched off. If the measuring tool is not connected to a battery power supply, an internal energy storage device will support monitoring for 72 hours.

### **Automatic messages from the tool to your smartphone**

I would like to give you another example of connectivity functions creating greater transparency in terms of servicing and maintenance with the GWS 18V-125 C Professional angle grinder: If the electronics, battery or motor overheat, it uses the Bluetooth module to send a message to your smartphone and includes tips for troubleshooting and error prevention at the same time.

We already offer a broad range of connected tools – from angle grinders to remote-controlled combi lasers. Including our innovations, we will reach more than 20 professional tools this year, including many world's firsts. We are convinced that we will be able to continue offering better solutions, which, through connectivity functions, will provide more added value – from individualization through to remote diagnosis. Our goal is to connect all of Bosch's power tools in coming years in order to fulfill our users' needs even better.

### **Working efficiently and without risking your health**

We want to make work easier for tradespeople. One essential aspect in doing so is occupational health and safety. We offer professionals a comprehensive system to make work efficient and healthy. Our range covers mechanical and electric solutions, anti-vibration measures and sensor solutions as well as dust management. Our magnetic brake system, for example, shortens the brake time on angle grinders by up to 70 percent. So-called dead man's switches also play a significant role: Our "Protection Switch" ensures that the angle grinder will only run for as long as the switch is pressed. It is designed such that it can be operated along the entire length of the handle – whether the angle grinder is held at the front, the back or the middle. This allows users to always maintain full control of their tool, even in difficult working positions.

In order to minimize vibrations, we provide tools with Vibration Control or vibration-proof handles. The GSA 18V-32 Professional saber saw, for example, has a counterbalance weight which constantly counteracts the inertial

forces. This means that this saber saw offers the lowest vibrations in its class. This vibration damping principle also comes into play in the hammer design.

Two key aspects of our system are sensor solutions, which directly minimize the risk of injury for users, and dust management solutions, which protect users in the long term.

### **Added value through sensor technology enjoys high acceptance by users**

We offer users added value through sensor technology. Bosch sensors are used in our drill drivers and rotary hammers, for example, to reduce the risk of injury caused by kickback. If the integrated sensor detects a sudden blockage while working – for example, if the drill bit jams – the motor switches off within a split second. We call this function KickBack Control. It has now been integrated into 25 Bosch professional power tools. We have already sold more than four million professional tools with this protective function worldwide – proof that we meet our users' needs for a high degree of occupational health and safety especially well. We use expertise from within our company for this development, too: Bosch is a leading manufacturer of sensors – our foundation for providing tradespeople with sensor-based technology for more safety.

### **Long-term protection prevents health risks**

The immediate protection of the user is not the only thing that matters – it is just as important to protect the user from health risks such as breathing in dust. We offer professionals the right solution for nearly every application: Our Click & Clean system comprises tools, wet/dry extractors, extractor accessories and L-Boxxes, which are precisely coordinated with each other and which function together to make work healthier, more tool-friendly, faster, more efficient and more precise. That includes our M certified wet/dry dust extractors. Both extractors are equipped with automatic filter cleaning which offers a permanently high suction power and thus ensures a continuous work progress. Compact and powerful cordless dust extractors such as the GAS 18V-10 L Professional are ideal for mobile tasks. The Click & Clean system is compatible with various dust extraction systems, such as those

designed for drilling and chiseling tools from the 2-to 27 kilogram class, or with dust guards for angle grinders. They extract the dust directly from where it is produced – and thereby minimize the risk to your health.

Accessories can also significantly contribute to protecting your health, as I am about to show you. In general, the following applies: A power tool is only as good as the accessories used. They make it a complete system. We provide power tools and accessories from a single source for perfect results.

### **System solution for virtually dust-free sanding**

Our system solution for virtually dust-free sanding comprises an innovative sanding net with an open net structure, a multi-hole sanding pad, our vibration-proof orbit sander and an extractor from the Click & Clean system. It saves tradespeople, for example in dry construction or interior finishing work, time-intensive cleaning after use, as it reduces dust exposure by up to 95 percent.

Unlike conventional sanding sheets, the open net structure enables dust extraction across the entire surface. Clogging due to residue as well as the workpiece or environment becoming covered in dust are minimized. At the same time, the lifetime of the abrasive is increased and a high material removal rate ensured. The sanding net is especially efficient when used in combination with the multi-hole pad: Its design enables dust extraction that is up to 50 percent higher compared to common six- to eight-hole standard pads. In addition, it is the only multi-hole pad of its kind on the market which is compatible with all common orbit sanders. The sanding process is fast and efficient – without damaging your health.

### **Higher material removal in two steps: grinding system for angle grinders**

For our next system, the main focus is on saving time: Using our two-step grinding system for angle grinders, professionals can grind mild and stainless steel surfaces smooth in just two steps. The optimized system offers an even higher material removal rate and ensures time savings of up to 25 percent for

tradespeople, compared to conventional grinding with multiple fiber disks of different grit sizes. The system covers all common applications, such as removing coarse to fine weld seams.

The process consists of using a fiber disk and an SCM disk, which perfectly match together. First of all, the fiber disk is used to remove the weld seam, then the SCM disk is used to achieve a smooth surface with a fine structure.

The new fiber disk has a longer lifetime and offers a higher material removal rate than previous zirconia fiber disks, thanks to the ceramic grit used: It is harder, tougher and breaks better than zircon, meaning that it continuously sharpens itself. A coolant applied to the surface of the ceramic fiber disk minimizes discoloration.

The SCM fleece disk also ensures a higher material removal rate in comparison to previous disks, thanks to a higher grit content. At the same time, it offers a smooth, even surface without visible scratches. The disk's elasticity provides the basis for this: Attached to the flexible carrier material are equally flexible nylon fibers combined with fine abrasive grit. These materials act like a spring and prevent the abrasive from penetrating deep into the workpiece. Moreover, the abrasive follows the existing surface structure. This means that you can even achieve good grinding results on uneven surfaces. Productivity – made by Bosch.

### **Carbide technology creates new application possibilities**

Accessories with carbide technology make for fast working progress and high productivity while sawing. They can be used in circumstances where conventional accessories reach their limits. Examples include our new reciprocating saw blades for demolition work in wood with metal, for fast cuts in thick wood and specially for pallet repairs.

Selected carbide grades and special welding technology allow for reliable, low-wear sawing and a lifetime that is up to 20 times longer than bi-metal

products. This means that hard materials such as high-strength and high-alloy steel, as well as abrasive materials, can be worked on – application ranges that are currently not covered by conventional bi-metal products.

The “Endurance for Wood+Metal Demolition” reciprocating saw blade has been specially designed for demolition work in wood with metal. The blade is ideal for cutting metal-coated components or components with screws and hardened nails embedded in them, for example casing boards. The embedding of the carbide teeth in the blade is reinforced to allow the saw blade to withstand these loads. In addition, the teeth are spaced further apart which increases the cutting speed. The blade withstands bending forces thanks to individually welded-on teeth. The carbide technology additionally allows for reliable work when the saw blade comes into contact with gypsum, mortar or bricks.

With the “Speed for Wood” reciprocating saw blade, we are offering the first carbide reciprocating saw blade optimized for quick cuts in thick wood. It can cut powerfully through oak, beech, green wood, dried wood, roots and even large pieces of construction timber. The design of the saw blade ensures extreme speed: The large spacing of 8 millimeters between each tooth transports saw dust away efficiently. Using carbide technology also enables the high sawing speed to be maintained and prevents it from decreasing after each cut, as is the case with saw blades made from bi-metal or tool steel.

The “Endurance for HardNail Pallets” is the world’s first carbide reciprocating saw blade for professional pallet repairs. An increasing number of pallets are being built with hardened nails – until now, removing damaged parts with bi-metal blades resulted in extremely high wear of the blade. This is where the “Endurance for HardNail Pallets” shows its strengths. The individual tungsten carbide teeth have a constant tooth spacing of three millimeters, and are therefore designed to withstand the high loads involved in sawing work. A high-quality band material and a band material thickness of just one millimeter make the blade particularly flexible. Welded-on tungsten carbide

teeth and a reinforced shaft also make it extremely durable. The result: Even hardened nails can be cut efficiently.

### **All-rounder: “Endurance for Heavy Duty” carbide holesaw**

In the future, professionals can also make use of the advantages of carbide technology with the “Endurance for Heavy Duty” holesaw. Wood, metal, brick, plastic, tiles, dry construction materials – it cuts through many different materials without overheating. It stands out from the conventional 40 millimeters models offered by competitors thanks to its increased cutting depth of up to 60 millimeters. The “PowerChange Plus Adapter”, which forms part of the system, has also been optimized for this application: It now has a stronger shaft and a more accurate pilot drill bit. In addition, it is the only product of its kind on the market which allows accessories to be changed without the need for tools. The centering hole can be drilled without using a holesaw and with an unobstructed view. One click is all it takes – and the holesaw is positioned ready to use on the adapter. The centering hole means that no force is necessary for attachment which protects the teeth and prevents the drill bit from breaking due to tilting. In this way, we make it easy for tradespeople to accurately create recesses and through-holes.

### **Bosch innovations for productivity and safe working**

As we draw to a close, let me sum up the most important points once again:

- We create innovations for increased productivity and safe working.
- We consistently expand our cordless range and enter dimensions of performance previously reserved for mains-powered tools.
- We connect power tools – with added value for users in organization and management, on-site use as well as servicing and maintenance.
- A power tool is only as good as the accessories used. We provide power tools and accessories from a single source for perfect results.

Thank you for your attention.

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*The Robert Bosch Power Tools GmbH, a division of the Bosch Group, is one of the world's leading providers for power tools, power tool accessories and measuring tools. In 2017, its roughly 20,000 associates generated sales of 4.7 billion euros, about 85 percent of which outside of Germany. With brands such as Bosch and Dremel, the division stands for customer focus and great engineering progress. The core success factors are innovative strength and pace of innovation. In 2018, Bosch Power Tools will again launch more than 100 new products onto the German market in its four business segments power tools, accessories, measuring tools and garden tools.*

*The Bosch Group is a leading global supplier of technology and services. It employs roughly 400,500 associates worldwide (as of December 31, 2017). According to preliminary figures, the company generated sales of 78 billion euros in 2017. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected industry. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to create solutions for a connected life, and to improve quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 125 locations across the globe, Bosch employs 62,500 associates in research and development.*

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