

NETWORKED CONSTRUCTION SITE 4.0.

BOMAG ASPHALTPRO.



MILLIONS OF KILOMETRES BEAR OUR SIGNATURE.

Whoever constructs roads, shapes landscapes, or carries out other earthwork projects can rely on BOMAG's unique expertise. For over 60 years, our name has stood for powerful, reliable machines – and for a good part of road construction history.

We are drivers of innovation and always think far ahead. BOMAG's new AsphaltPro app clears the way for your digital construction planning and site management. The app enables maximum efficiency and consistent process optimisation in all areas. Clear, simple, and mobile.

BOMAG AsphaltPro allows you to control your asphalt job site digitally. Intelligent network-

ing means that the entire construction site data is available at all times. During the paving process, the app constantly compares target specifications from planning with current site data. All in real time. Everything under control.

We owe our power of innovation to more than 2,500 committed employees worldwide.

A source of expertise that has made us the global market leader in this sector. The foundation for this is our unconditional commitment to quality: in product development and production, in the qualification of our employees, and in service that guarantees optimal on-site support.





LEADER IN DIGITAL SOLUTIONS. BOMAG.



DIGITAL ALL THE WAY.

BOMAG machines are on the road to success worldwide. Asphalt roads stretching as far as the horizon are proof of our expertise. We are drivers of innovation and always think far ahead. We develop pioneering software to complement our machines. We are bringing the advantages of digitisation to you. Here and now.

The advantages offered by digitisation include greater efficiency and quality, measurability and comparability, reliability and transparency, and a significantly reduced workload on the entire construction site. We pack all this and more into digital BOMAG products to simplify your everyday work on

the construction site. We pass on our expertise: thanks to our many years of practical experience, we understand exactly what you need in your daily work, and apply our know-how to the development of digital solutions.

To make it as easy as possible for you to perform great work and succeed, we dispense with exclusivity. We have deliberately made our digital BOMAG solutions compatible with products from other manufacturers. We offer an open interface that can be integrated into any machine in your fleet, regardless of the make. Because it is important to us that your construction site runs seamlessly.

BOMAG ASPHALTPRO – NETWORKED CONSTRUCTION SITE 4.0.

Your construction site: always in view in real time. AsphaltPro is immediately ready for use. No special hardware is required – a laptop, tablet or smart phone is sufficient. AsphaltPro lightens the site manager's workload and makes construction planning mobile, calculates the necessary paving parameters and targets to the exact minute, automatically generates all planning documents, reacts flexibly to changes, and connects the mixing plant with the trucks and the construction site in real time.

Go one step further: use AsphaltPro, BOMAP and JOBLINK in combination to become even more efficient. By connecting our digital products, you can link real-time machine data with live data from the construction site. Using our JOBLINK interface, your work results are documented live on the construction site and displayed in our BOMAP app.

Together, AsphaltPro, BOMAP and JOBLINK make a perfect team for the seamlessly digital construction site, and guarantee maximum efficiency.

WELCOME TO THE NETWORKED CONSTRUCTION SITE 4.0.



TRANSPORT: IN PERFECT SYNC.

- Automatic creation of a logistics plan on the basis of planning data.
- Generation of truck schedules. Optimisation through dynamically generated time specifications for each driver.
- Documentation of truck downtimes for analysis and further optimisation.



CONSTRUCTION SITE: HASSLE-FREE GREAT RESULTS.

- Digital control of all construction site processes in real time.
- All parameters at a glance in real time, e.g. mass balance, paving progress, truck logistics.
- Continuous comparison of actual performance data with target planning data, for full control and immediate response capacity.
- Continuous paving process, avoiding paver stops ensures a smoother surface and improved quality.



RESOURCE PLANNING: AS FLEXIBLE AS REAL LIFE.

- Digital resource management of machines, fleet and employees across several construction sites.
- A collision warning system prevents duplication of resources.
- Flexible plan adjustment and reaction to process disturbances.



SITE PLANNING: MADE EASY.

- Planning of the entire construction site with all parameters such as paving, timing, material requirements, costs, time.
- Planning validation via the simulation module.
- Process reliability and control through advance simulation.



DOCUMENTATION AND ANALYSIS: DAY BY DAY OPTIMISATION.

- Automatic documentation of all construction site data at any time.
- Linking of delivery note data and relevant paving information with the GPS position.
- Detailed display of each paving day with interactive analyses for process optimisation.
- Simple evaluation and display of key project figures.



MIXING PLANTS: MAXIMUM EFFICIENCY.

- Easy data exchange thanks to open interface to the mixing plant.
- Digital delivery notes are transferred directly into the system, no manual data entry required.
- Material requirements planning and adjustment in real time.





SITE PLANNING: MADE EASY.

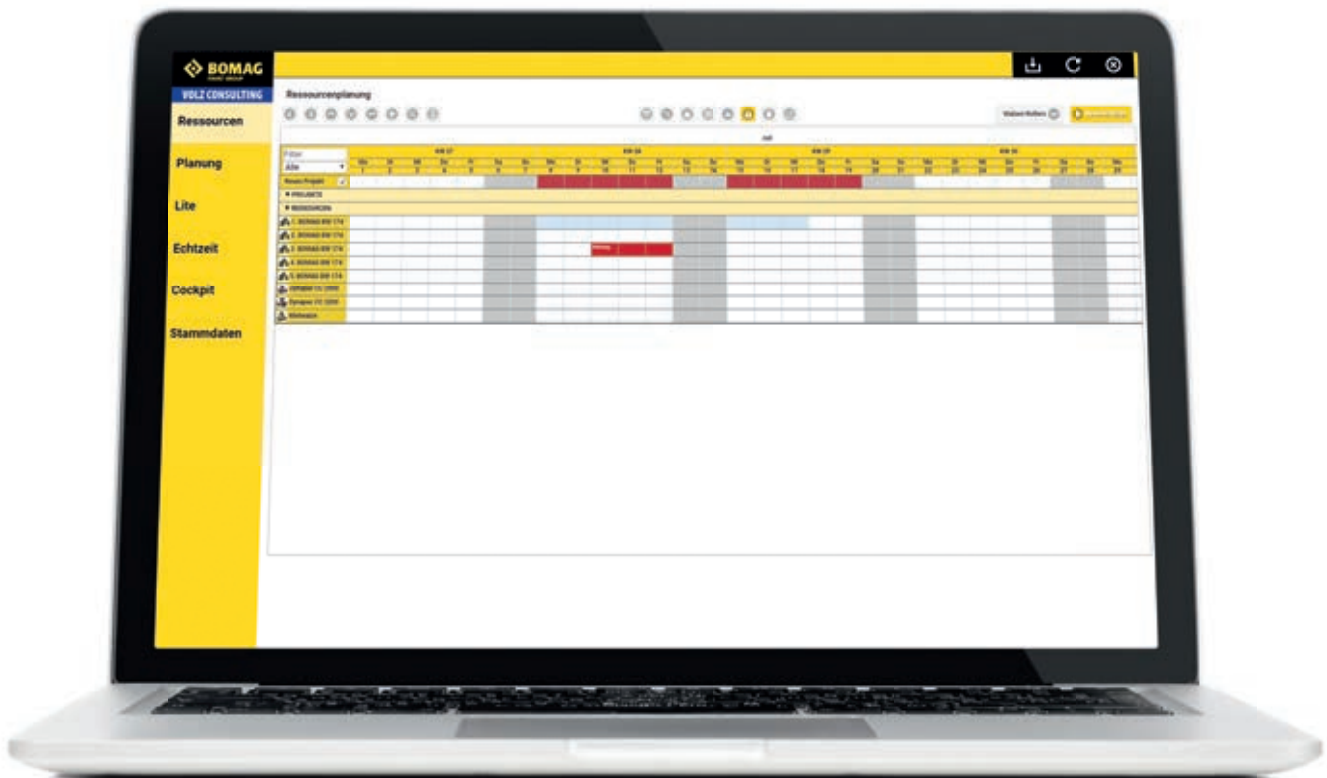
Less time, better results. BOMAG AsphaltPro considerably reduces your planning time and effort while increasing planning quality. With AsphaltPro, you can plan your entire construction site in a single program. Step by step, transparently and reliably.

The basis for planning is pre-measurement of the site. For this purpose it is possible to import existing 3D data and survey information or to model the construction site directly in AsphaltPro. On the basis of the input number of layers and their paving thickness, AsphaltPro calculates the required volumes and masses. From this, AsphaltPro generates all the parameters from mix requirements and construction time planning to the paving and logistics concept for mixing plants, trucks and building sites.

You receive a comprehensive planning proposal, which directly divides the construction site into paving days, clearly arranged in a calendar. This proposal can of course be further processed and adapted to your requirements.

To make absolutely sure, you can simulate the planned construction site in advance, verify the planning, and optimise the processes. During asphalt paving, you control the planned processes by app in real time.

Does your planning data require changes due to delays, higher consumption or as a result of your daily analysis during construction, for example? No problem. AsphaltPro adapts your planning flexibly and automatically. You always have the optimum plan.





RESOURCE PLANNING: AS FLEXIBLE AS REAL LIFE.

Put an end to the many planning tables and lists of different planning managers who all access the same resources. Thanks to BOMAG Resource Manager, the effort is kept to a minimum. And it easily manages all resources at multiple job sites simultaneously – in just one single interface. The system is flexible and intelligent. It provides full resource planning reliability. Once the right machines have been selected, BOMAG Resource Manager creates a deployment plan covering all resources such as machines, fleet, employees and subcontractors. You are free to edit the proposed resource assignment / scheduling as required.

The system draws information from BOMAG TELEMATIC during operation and displays all resources in real time, e.g. location and availability. With TELEMATIC, you also see immediately if a resource is running out. In the event of delays, machine outages, bad weather or employee

illness, the resource plan changes. This quickly leads to a chain-reaction and resources have to be re-allocated. And that takes time. But not with BOMAG Resource Manager, because here a suggested solution for your new resource planning is just a click away.

Coordination difficulties do not even arise. If necessary, individual project days or entire projects can be postponed. The system is smart and immediately detects potential errors such as double allocation, or reminds you of maintenance and service dates. Every change automatically triggers an update to the resource plan. It's that simple.

The messaging function passes on all the resource data directly to all process participants, ensuring a transparent flow of information. The site manager, supervisor, material planner and machine shop are always up to date in real time. In this case, the chain reaction is a positive effect.



MIXING PLANTS: MAXIMUM EFFICIENCY.

BOMAG AsphaltPro simplifies all aspects of the mixing plant and ensures excellent capacity utilisation. The app communicates with the mixing plant via online interfaces and transmits the material requirements generated in planning, supporting the mixing plant with capacity planning and setting the pace for mix production.

Planning changes (e.g. additional material requirements on the construction site) or process disturbances (e.g. a truck is stuck in a traffic jam) are transmitted to the mixing plant in real time via AsphaltPro. This enables the mixing plant to react flexibly to the demand situation at any time.

AsphaltPro saves delivery note data from the mixing plant autonomously in the system. If required, the deliv-

ery can be confirmed with the supervisor's digital signature. Electronic delivery notes with digital signing save manual effort.

At the job-site unloading station, data on material parameters, mix type, loading temperature, time of full weighing and tonnage are assigned to the unloading location and saved in the system.

This enables full quality documentation of the supply chain. All construction progress information can be called up in real time at the mixing plant. At the end of each construction day, you can check the capacity utilisation in the analysis and optimise it if necessary. Achieve maximum efficiency effortlessly.





TRANSPORT: IN PERFECT SYNC.

BOMAG AsphaltPro reduces downtime in your truck fleet as much as possible, increasing efficiency throughout the entire construction process. Customised to your construction project, AsphaltPro develops the best logistics concept at the click of a mouse.

On the basis of a wide range of information such as mix requirements, the number of mixing plants, and truck turnaround times, the system determines the best transport logistics for you, including scheduling with minimum truck downtime. If necessary, you can adapt this proposal to the site conditions at any time.

For perfect capacity utilisation, AsphaltPro sends the transport orders to the truck drivers in real time. They are also sent navigation instructions to the construction site – conveniently via the app, so that everything is in the right place at the right time.

You have a fully transparent overview of your entire truck fleet at all times. AsphaltPro creates a virtual supply chain via GPS tracking of the trucks. It shows truck positions, estimated arrival times, mix temperature and mass balance.

In addition, truck number plates, traffic data, route deviations, driving time, standing time, breaks and malfunctions can be called up.

Tracking is carried out either via a free app, an optionally available tracker or conveniently by integrating the truck manufacturer's own telematics.

At the end of each paving day, you can view the supply chain, detect delays with the interactive root cause analysis, and make adjustments for the coming days – everything runs perfectly.



CONSTRUCTION SITE: HASSLE-FREE GREAT RESULTS.

The more continuous and smooth the construction site runs, the more even the asphalt surface. To achieve top quality, BOMAG AsphaltPro ensures a smooth paving process. On the construction site, you control all the processes in real time. AsphaltPro gives you the best overview and full control. Thanks to the network between the mixing plant, truck logistics and construction site, all performance data is available at any time.

How much material has already been paved? How much material is on its way to the construction site by road? How much material still has to be paved today? When will the next truck arrive at the paver? All this important information is displayed in real time. BOMAG AsphaltPro compares your actual figures and target specifications. This all-round view enables ideal control and, if necessary, timely intervention. More reliability, less stress. AsphaltPro

can store all sensor data from the paver regarding width, layer thickness and temperature for comprehensive quality documentation. You can also save all the information on each shipment in the construction logbook, such as sampling, temperature measurements etc., as well as document the construction progress. BOMAP allows you to go one step further: With its help, you can assign all information for surface covering dynamic compaction control to the batch. In this way, the compaction temperature, roller passes, and compaction measuring values can be assigned to the respective section. Your roller driver can see on a real-time map which areas have already been compacted and which areas still need to be covered. This gives you control over the entire process chain from planning to the finished road – because it is the result that counts.





DOCUMENTATION AND ANALYSIS: DAY BY DAY OPTIMISATION.

What, how, where, why? BOMAG AsphaltPro seamlessly documents and analyses your entire construction site. This saves time and helps to reveal valuable potential. AsphaltPro automatically collects all the site data from the initial planning to the fully compacted asphalt. The digital delivery notes are directly linked to relevant paving information and GPS positions. Sensor data from all the machines are incorporated, regardless of manufacturer.

This enables you, for instance, to determine the progress of every construction phase at any time, if required: Where did the mix come from, and when? Which truck delivered it? Which finisher paved the material with which settings? What were the paving temperature and readings?

At the end of each paving day, AsphaltPro provides practical documentation. From this, you can retrieve

information for clients, export delivery note data and generate invoices – conveniently and efficiently.

AsphaltPro displays the data for each paving day in an informative overview, making valuable analyses possible and the exact construction sequence transparent. The interactive analysis enables you to identify and exploit optimisation potential.

For instance, you can improve processes for the coming days, minimise truck downtimes or reduce paving interruptions. Thanks to AsphaltPro, you evaluate the construction site on the basis of the project report and key indicators, and can create quality documentation in accordance with legal requirements. Any more questions? AsphaltPro has the answer to everything.

EVERY ASPHALT CONSTRUCTION SITE UNDER CONTROL

BOMAG AsphaltPro adapts to the user's every requirement: There are three different modules, depending on the requirements of the construction project or user.

With **BOMAG AsphaltPro Lite**, you control the processes of your asphalt paving innovatively in real time via app. You have all the site data in view and can track the current target/actual status. Extensive documentation is available at the end of each paving day. The information it contains can be used for accounting and reporting purposes. For example, you can see the efficiency of the site logistics or evaluate truck downtimes at a glance.

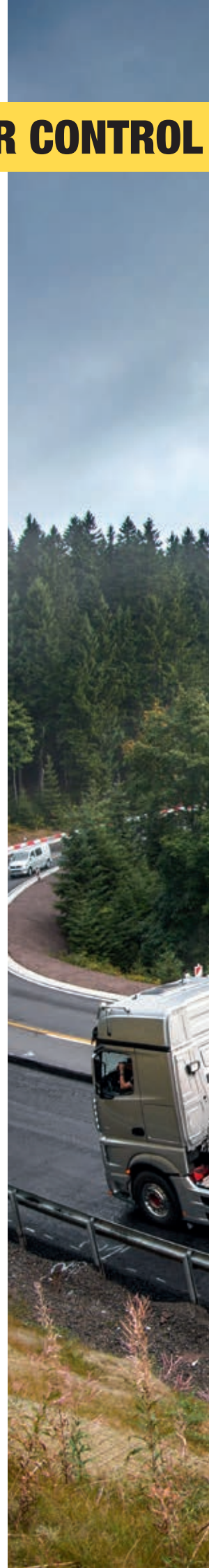
With **BOMAG AsphaltPro**, you can also map the entire planning of your construction sites. It automatically provides you with editable planning proposals for all parameters in the construction sequence, paving and logistics, including scheduling. When in operation, AsphaltPro generates dynamic transport orders for the trucks. The planning

data can be adapted to changing conditions at any time.

BOMAG AsphaltPro Lite services – real-time process management and documentation – are included. Interactive analyses help you discover valuable optimisation potential.

You can use **BOMAG Resource Manager** as part of the AsphaltPro world or as an independent tool.

BOMAG Resource Manager enables you to plan the best possible resource allocation across all your company's construction site projects. All resources, from machines and fleets to personnel, are displayed in a single overview, and can easily be assigned to the relevant projects. This prevents double bookings, and free capacities are displayed clearly. If required, time recording and construction accounting systems can be connected to BOMAG Resource Manager.



WITH ONE APP.



BOMAG ASPHALTPRO LITE.

EASILY CONTROL SMALL PROJECTS IN REAL TIME.

- Digital real-time control of processes thanks to the networking of the mixing plant, truck fleet and job site.
- Live display of construction site work flow including material flow status.
- Target-actual comparison in real time.
- Messaging function for all participants.
- Seamless documentation of the paving day with detailed construction progress.
- Recording of optimisation potential regarding e.g. truck downtimes and interruptions to paving.
- Transmission of digital delivery notes from the mixing plant.
- Provision of data including digital delivery notes.

✓ Process control in real time.

✓ Documentation and analysis.



THE DIGITAL CONTROL CENTRE FOR ROAD CONSTRUCTION.

THE DIGITAL CONTROL CENTRE FOR ROAD CONSTRUCTION.

- Intuitive, integrated construction site planning in one program.
- Preparation of all paving parameters on the basis of site pre-measurements.
- Provision of complete construction sequence planning with highly efficient scheduling.
- Simulation of the construction process.
- Reliable material requirements and cost planning.
- Optimum process reliability and transparency.
- Flexible plan adjustment during operations.
- Integrated interfaces for exporting data to other systems.
- Easy generation of invoices, overall analysis, reports.

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- Easy generation of invoices, overall analysis, reports.

- ✓ Step-by-step construction site planning.
- ✓ Documentation and optimisation.
- ✓ Interactive analysis function.

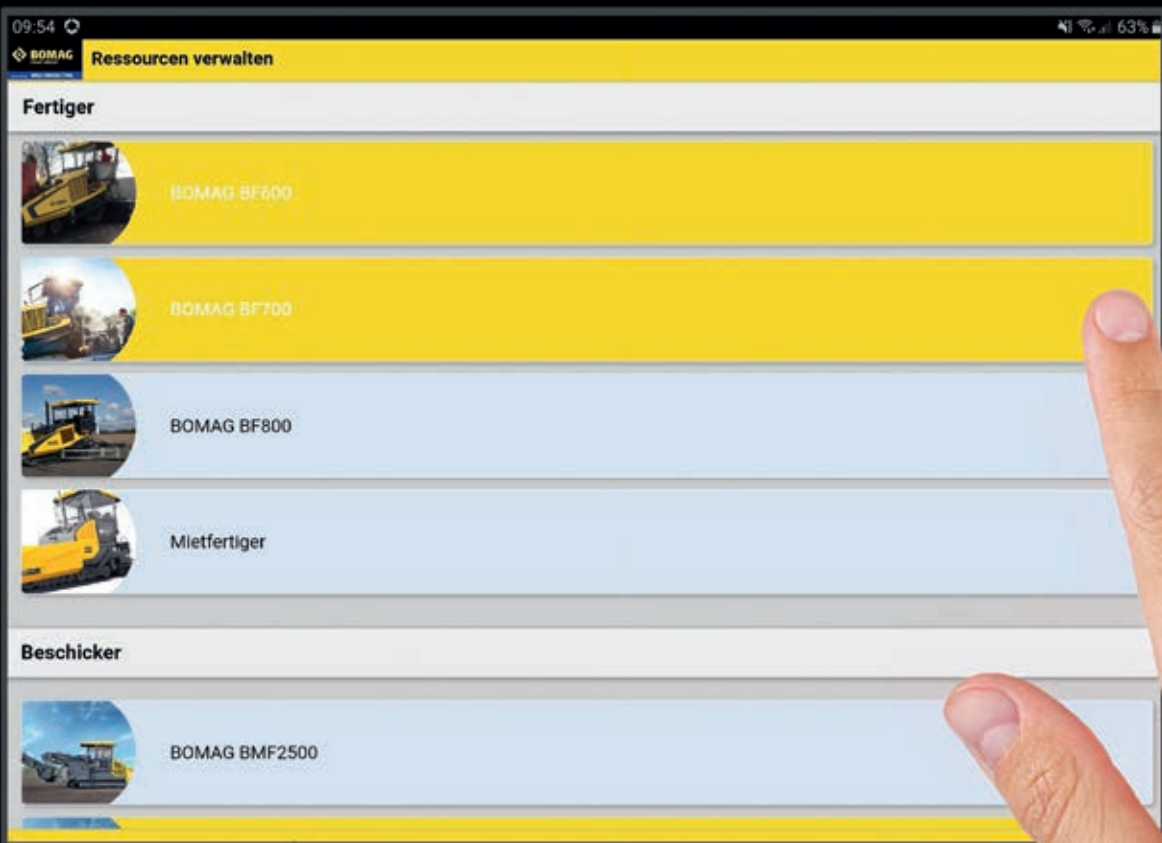


BOMAG RESOURCE MANAGER.

PERFECTLY MANAGED RESOURCE PLANNING.

- Deployment management of machines, fleet, and employees across several construction sites.
 - Coordination effort reduced to a minimum.
 - Full machine-fleet transparency in combination with BOMAG TELEMATIC.
 - Flexible response to short-term changes to plans, e.g. in the event of machine failure or illness.
 - Avoidance of duplication and scheduling conflicts.
 - Update of all projects and schedules with one click.
 - Messaging function and transparent information flow of all operational data in real time by app.
 - Simplified invoicing through mobile time recording, integration into downstream systems possible.
- ✓ Usable as a supplement to AsphaltPro.
 - ✓ Usable as a stand-alone tool.
 - ✓ Optimum resource planning for operator and machine.





OUR SOLUTIONS WORK HAND IN HAND – FULLY DIGITAL

Our machines with intelligent measuring technology are the prerequisite for digitising the construction site. With our JOBLINK interface, all important machine information and recorded readings can be transferred to BOMAP, e.g. E_{VIB} values (MN / m²), amplitude, travel speed and direction, frequency, and temperature. In tandem, JOBLINK and BOMAP provide the highest level of quality assurance and quality verification.

BOMAP, the smart helper on construction sites, is the new, self-explanatory, mobile solution that allows you to document your work results right on site in real time. With BOMAP Connect, the machines are networked with each other to create a complete compaction map of the construction site – across all machines, regardless of manufacturer. BOMAP counts the total number of passes made by every machine, thus providing an overview of the compaction progress on the construction site at any time.

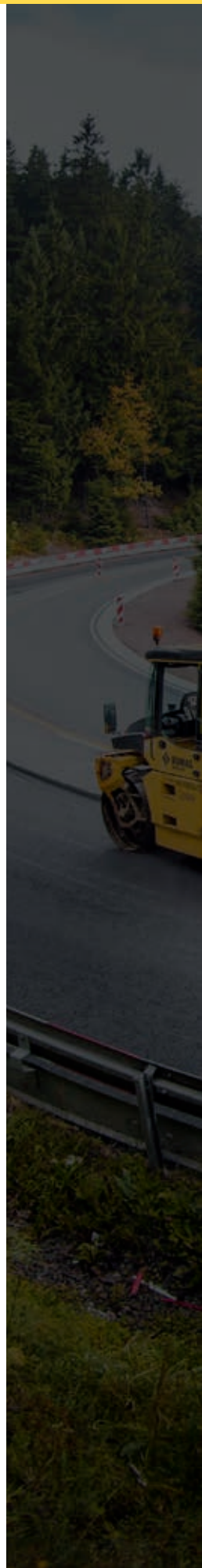
Only BOMAG machines in combination with JOBLINK are in a position to record all the process-relevant information for each position in addition to the passes. This provides

you with a complete compaction record for quality control, and shows you instantly whether all your compaction targets planned in BOMAP Connect have been achieved in every project.

This information is linked in AsphaltPro with live data from the construction site. This allows you to see at any time and at any position on the site which material has been placed where with which batch, which roller has compacted it as well as its temperature and the measuring values achieved.

Thanks to this unique link, BOMAG is the only company that can map and document everything from planning to the finished compacted asphalt in real time.

The right machine with the right personnel at the right time on the right construction sites – BOMAG TELEMATIC in conjunction with BOMAG Resource Manager ensure this.



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BOMAG MACHINES.
YOUR GUARANTEE FOR
SUCCESS.



JOBLINK.
OPEN
INTERFACE.



TELEMATIC.
THE EFFICIENT
FLEET MANAGER.



BOMAP.
YOUR SMART HELPER ON
CONSTRUCTION SITES.



ASPHALTPRO.
THE ROAD CONSTRUCTION
CONTROL CENTRE.





OUR GOOD REPUTATION AND DIGITAL SOLUTIONS PAVE THE WAY.

Quality quickly becomes evident. All over the globe. That's why BOMAG machines are deployed throughout the world. When building a motorway from Beijing to Inner Mongolia, for example, or an airport in Istanbul, or on construction sites in Germany. The picture shows the repair of a country road with an area of 5,000 m². The BOMAG BF 700 universal paver and two BW 154 AP

tandem rollers with axle steering and ASPHALT MANAGER 2 were used for the job.

We are proud of the fact that machines and digital solutions, as only we make and develop them, are trusted by companies all over the world.

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