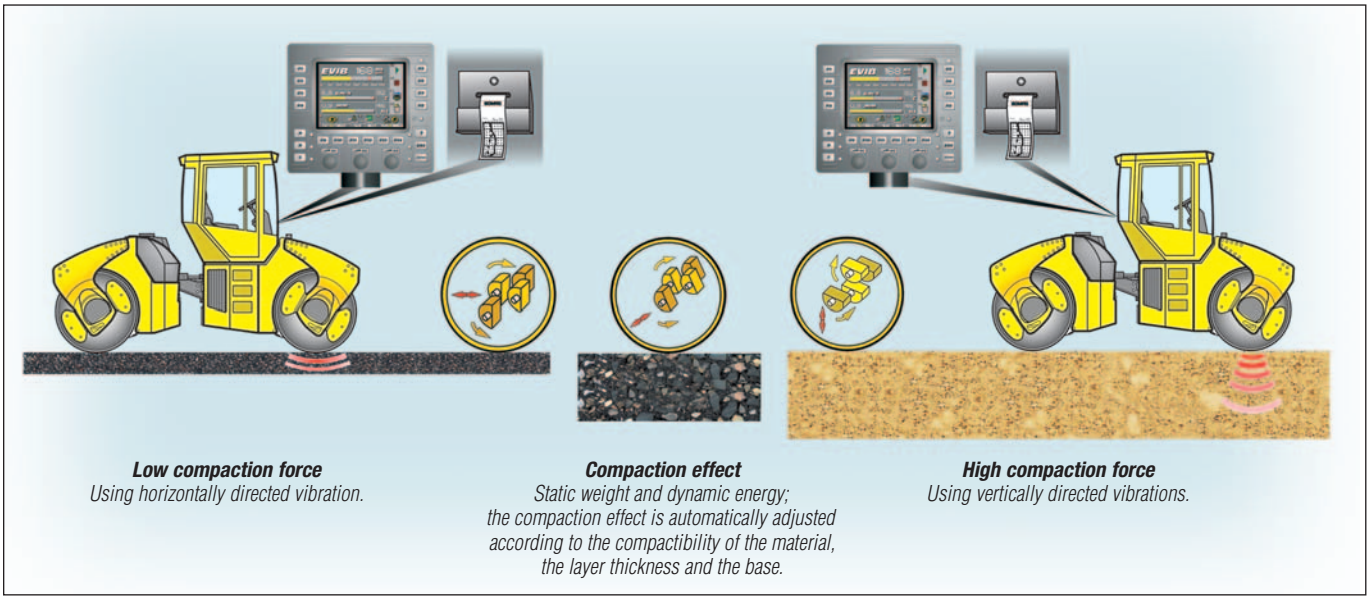
BOMAG
FAYAT GROUP

ASPHALT MANAGER

Automatic Compaction Control with E_{VIB} (MN/m^2)

ASPHALT MANAGER, articulated models: BW 141/151 AD-4, BW 151 AC-4, BW 154 AD-4, BW 190 AD-4, BW 203 AD-4

ASPHALT MANAGER, pivot steered models: BW 170/174/184 AD-2, BW 174 AC-2

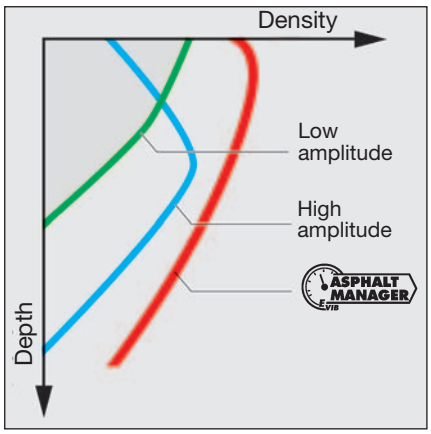


ASPHALT MANAGER with directed vibrator system: vibration direction adjustable and auto-optimising.

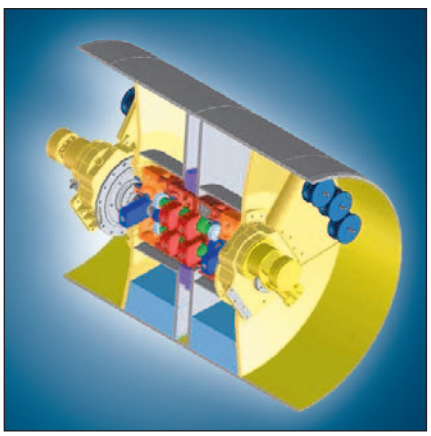
State-of-the-art technology plus years of experience

For many years BOMAG has lead the world with vibration systems producing automatic optimisation of compaction performance. These systems have been enhanced by continuous improvement and have made BOMAG rollers the most efficient machines in their class. The optimisation process works using directed vibrations so that the effective direction can be infinitely adjusted between horizontal and vertical. On bearing and binder layers, as well as chip mastic asphalt, the exciter is inclined more towards the vertical, whereas on thin layers and mixes sensitive to scuffing, on bridges and near buildings, the adjustment is more towards horizontal. Such optimisation is not possible with conventional rollers!

With ASPHALT MANAGER, the system automatically produces maximum compaction without unwanted drum bounce. If required, the setting can be preselected manually to suit the job at hand. ASPHALT MANAGER (AM) assesses the stiffness of the layer to be compacted and measures the surface temperature. This data is continuously displayed on a central display (BOP).

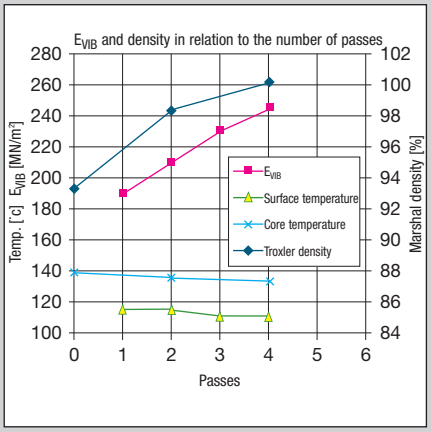


ASPHALT MANAGER compared to conventional technology.

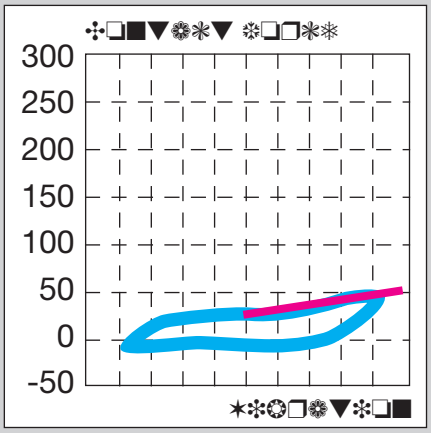


Drum with directed vibrator for ASPHALT MANAGER (BW 184 AD-2 AM).

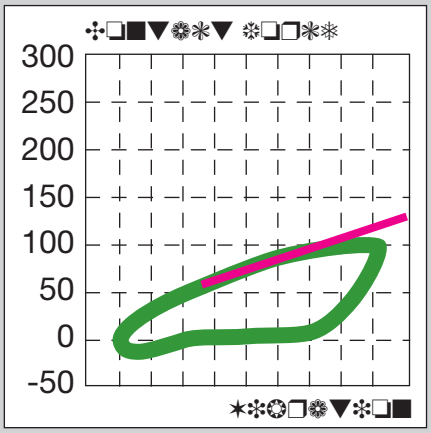
State-of-the-art compaction: ASPHALT MANAGER, flexibility and power.



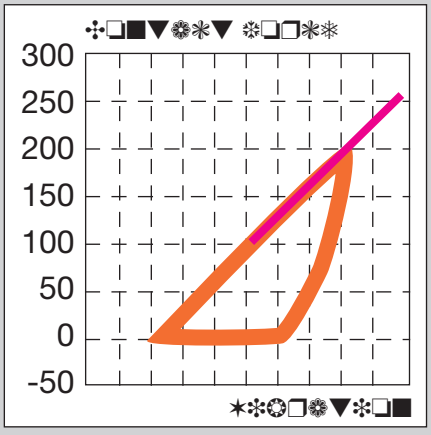
BW 174 AD ASPHALT MANAGER, automatic system, asphalt bearing layer 0/32 CS B65.



E_{VIB} = 86 MN/m² (1. pass).



E_{VIB} = 158 MN/m² (3. pass).



E_{VIB} = 242 MN/m² (6. pass).

Theory and practice united

Increasing traffic density places ever-increasing demands on the load bearing capacity of asphalt roads. At the same time, qualities such as evenness and skid resistance become more important than ever before. Ultimately there can be no compromise: compaction and quality are essential! ASPHALT MANAGER was developed to achieve both requirements as efficiently as possible. How does the system work? The aim of this technology is to provide a direct assessment of compaction status during the rolling process.

Calibration of E_{VIB}

Assuming a workable temperature and a stable subbase, it is possible to calibrate E_{VIB} with a nuclear gauge. Result: a direct relationship between E_{VIB} and Marshal density! This is a major breakthrough in the management of asphalt rolling operations.

ASPHALT MANAGER is the most efficient choice for medium to large-scale applications.

The vibrating drum is used to measure the progress of compaction. Here the contact force acting between asphalt and drum and the vibration path of the roller unit are monitored. This results in loading and unloading curves (see illustration) with each revolution of the exciter shaft; the asphalt stiffness is calculated from the loading curve - similar to the plate compression test used in earthworks.

E_{VIB} value

We now have a physical value to show the increase in compaction – the vibration modulus E_{VIB} (MN/m²). This is continuously displayed by the system. BOMAG's years of experience with ASPHALT MANAGER show that theory and practice are in agreement. The results are reproducible as long as rolling temperatures are within the practical working range of 100 °C and 150 °C. The temperature of the asphalt surface is continuously displayed to the roller driver.

E_{VIB} target values

With experience, the roller driver is able to use ASPHALT MANAGER to provide empirical values, which can be used as targets for E_{VIB} since any increase in this value also means an increase in Marshal density. This is an important aid to quality assurance and a reliable guide for the roller driver. Compaction technology has entered a new era with ASPHALT MANAGER. It means that the E_{VIB} values can be saved with the BOMAG recorder (option) and printed out directly on-site.

Automatic control of compaction force

Measuring compaction with ASPHALT MANAGER

ASPHALT MANAGER is a Compaction Management System. It provides measurement of the stiffness of asphalt surfaces during rolling. The stiffness value is continuously monitored and displayed. Compaction is thereby controlled and displayed and soft spots are flagged immediately. The system automatically optimizes the performance of a roller and displays the increase in compaction using a physical reference value "E_{VIB}" in MN/m^2.

Good compaction and quality – across the surface

The E_{VIB} value is able to monitor the increase in compaction on bearing, binder and surface layers provided that the subbase is evenly compacted and has sufficient bearing capacity. The influence of the asphalt surface temperature on stiffness is also taken into account. The new system is a breakthrough in modern compaction technology; it is efficient, fast and produces results compatible with standard test procedures.

Efficient compaction management with ASPHALT MANAGER is a must for any contractor who wishes to increase the efficiency and quality of compaction work. Practice shows that BOMAG rollers with ASPHALT MANAGER achieve better compaction results – even compared to heavier rollers using conventional technology or rollers with purely oscillating drums. This applies equally with thick and thin layers.

Recommendations for use

ASPHALT MANAGER is suitable for asphalt layers, frost protection layers, unbound bearing layers and road subbases. Work is primarily carried out in automatic mode. The advantages are clear: the roller driver can concentrate on his rolling patterns; the automatic system makes adjustments to the compaction force and controls the performance.

Thin layers:
A low compaction force can be preselected (using the step switch) for thin layers or mixes sensitive to scuffing. This avoids overcompaction and improves surface quality.

Asphalting on bridges:
Horizontal force can be set manually for careful rolling of asphalt or to avoid potentially harmful vibrations.

Chip mastic asphalt:
The hot mix is compacted with high amplitude. Fewer passes cuts cost – decisive when the material cools rapidly in bad weather.

Additional benefits:
The compaction forces directed vertically and horizontally always complement the drum drive, which switches to the driven direction when reversing. In addition, there are fewer tendencies to scuff sensitive asphalt.

Simple to operate

Working with ASPHALT MANAGER requires no special training. The controls are self-explanatory. Drivers use automatic mode for approx. 90 % of all applications. The maximum amplitude can be restricted to 3 settings depending on layer thickness.

This means the compaction force is automatically suited to the bearing capacity of the subbase.

Six fixed settings are available for more experienced operators or for special applications.

Compaction work on bridges or near housing requires low vibrations.

A brief glance tells all: the ASPHALT MANAGER display shows key compaction information.

Large-scale asphalt work requires highly efficient rollers: BW 203 AD with ASPHALT MANAGER.

Compacting a longitudinal joint (hot on cold); amplitude is adjusted automatically.

ROPS / FOPS: Optimum protection for the driver at all times.

Documentation using a tachograph.

Edge compacting roll: indispensable for efficient compaction of unsupported edges.

Precision chip spreader: The BS 180 distributes chips evenly and precisely.

BOMAG options for greater efficiency

ROPS / FOPS

Depending on the destination all BOMAG rollers are equipped ex factory with a range of options: ROPS/FOPS is a Roll Over Protection Structure and Falling Objects Protection Structure. It is used instead of a ROPS cab and protects the operator should the roller tip and gives protection against falling objects.

Tachograph

The tachograph records key data such as the vibration frequency and driving speed which can influence compaction. The recorder uses a tachograph disc. The tachograph is mandatory in France and in other countries subject to French regulations.

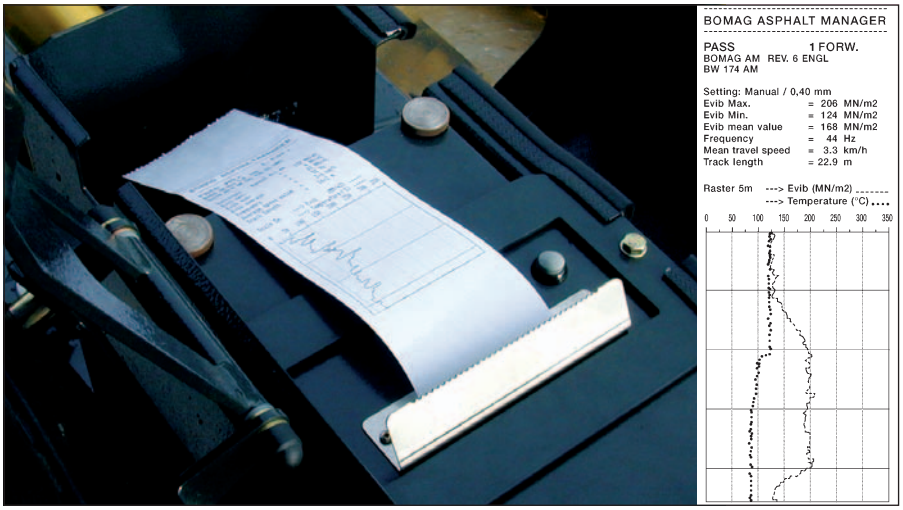
across the surface. The screed, which is patented by BOMAG, vibrates at a high frequency and creates a level spreading effect even with damp chips or coated chippings. Result: excellent spread quality, precise distribution.

Results recording

It can be a major benefit if the compaction results can be stored on site. This is easy to do with the BOMAG results recorder.

The E_{VIB} data recorded by the ASPHALT MANAGER in MN/m² are saved and can be printed out in a handy format at the end of the rolled section. Among other items the following information can be saved: selected amplitude, the length of the rolled strip, the driving speed and the surface temperature of the mix.

The BOMAG recorder is an indispensable accessory for quality assurance and documentation on the site.



Available instantly on site: report for a measured section.

Compacting edges

Special attention to asphalt layers near joints, at junctions and edges is already obligatory in some countries in Europe. This includes compacting unsupported layers with a conical roll and trimming pre-cooled mix with a cutting disc. These tools are all available as options. Special rolls can be supplied with different angles (35°, 45°) to suit the thickness of the asphalt layer.

Precision chip spreader

Surfaces can be coated with fine chippings to improve the skid resistance of surface layers, especially on chip mastic asphalt. For this purpose, BOMAG has developed the BS 180. A special screed distributes the chips evenly

BCM for GPS applications

The quality and economic efficiency of compaction equipment is of great importance particularly on large-scale projects in asphalting and work on road subbases. Unnecessary passes must be avoided as in extreme cases these can mean an additional roller has to be used resulting in higher costs. With the BCM 05 Positioning Software, BOMAG offers the prerequisites for recording and documenting compaction results. The new system means that the position of the roller is unmistakeable

State of the art compaction technology with satellite navigation.

and is documented with a high level of precision. The characteristic value for the surface covering compaction control E_{VIB} (MN/m²) is clearly related to positioning data. The roller driver can follow the results "online" using a so-called Panel PC on the roller.

Prerequisites

The system is available for all BOMAG rollers with ASPHALT MANAGER that are also equipped with BCM 05. The roller can be positioned in combination with the current DGPS/ATS products; the BOMAG system has interfaces ready and waiting for this purpose.*

Accuracy

Depending on the quality of the DGPS/ATS system, the positioning tolerance is between 10 cm and 50 cm. BCM 05 positioning guarantees high quality, clear SCCC documentation and back-ups for compaction data without the risk of faulty operation or data manipulation.*

Advantages

- *Clear management of measured data with BCM 05 software*
- *Concise and detailed measurement reports*
- *For on-site use, easy to operate*
- *Cost effective use of rollers*
- *Guarantees an evenly good compaction quality.*

**) Differential GPS (reference station)*

Best for
COMPACTION

BOMAG provides local service and support no matter where your next contract is located.

As world market leader in compaction equipment, we offer you the widest range of products backed by expert support and advice aimed at keeping your operation profitable.

Modern manufacturing plants in Germany, USA and China together with licencees and partners around the world supply BOMAG rollers to global markets.

Regional customer care is centred on six branches in Germany, eight subsidiaries in Austria, Canada, China, France, Great Britain, Italy, Japan and USA, one sales office in Singapore and over 500 independent BOMAG dealers.

BOMAG Service. Everywhere and for every need. Our branches and dealers are backed by BOMAG's Central Parts warehouse where about 40,000 parts are held against customer requirements. You expect top service from BOMAG. We aim to provide it.

Quality! For the paint finish of the machine BOMAG as far as possible uses a high quality environmentally friendly powder coating, which excels by its excellent resistance against corrosion, scratching and ultraviolet light.

BOMAG. The world's foremost compaction company.

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