More Quality in Road Construction
Innovative technologies and solutions from VÖGELE

www.voegele.info
Building roads is a challenge as regards both logistics and technology. Decisive advances are repeatedly achieved as individual technologies are developed further.

The secret behind quality and cost-efficiency primarily lies in ensuring a hitch-free work process in which all individual steps are perfectly coordinated. For this reason, VÖGELE develop not only individual technologies, but also complete systems which follow logically one from the other and interlink in a practical manner.

Material management, machine operation, feeding the paver with mix, machine and screed technology, and process management all form a single unit in VÖGELE’s quality philosophy. That is one of the reasons why we are the No. 1 in roads. The name VÖGELE stands for more quality in road construction.

- Perfect transfer of the mix
  - Uninterrupted, safe supply of material thanks to sophisticated technology and communication.

- Intelligent material management
  - Continuous flow of mix using efficient conveying systems.

- Convenient “AutoSet Plus”
  - Perfect repositioning on the job site – perfect paving due to sophisticated automatic functions.

- Modern quality assurance
  - High-grade measurement of the pavement temperature directly behind the screed.

- Innovative screed technology
  - Precision, ergonomics and modern grade and slope control systems ensure maximum evenness of the road surface.

- Revolutionary WITOS Paving
  - Revolutionary optimization of all paving processes using a comprehensive and powerful telematics system.
Perfect Transfer of the Mix

Non-contacting, non-stop supply of mix assures quality – VÖGELE material feeder technology

Uninterrupted asphalt paving is based on the material management of the VÖGELE PowerFeeder. High daily laydown rates with outstanding quality can only be achieved in this way. Our attention focuses particularly on ensuring that the mix is transferred to the paver precisely, reliably and without contact.

Automatic distance control between the material feeder and the paver helps the paver operator concentrate entirely on the transfer of mix. Additional safety is assured by the collision protection system: if there is any risk of a collision, the paver following behind the material feeder is automatically stopped and a potential collision prevented.

Special technical solutions have been developed to prevent segregation of the mix as it is being transferred to the paver’s material hopper. Conical worm conveyors in the receiving hopper of the feeder and the trough-shaped belt conveyor serve to homogenize the mix.

Perfect transfer of the mix by the VÖGELE PowerFeeder:

> The overall system’s enormous capacity of up to 40 t of mix allows paving to proceed without interruption – one of the most important requirements for producing a pavement with maximum evenness.

> The feeder guarantees that the paving material is transferred to the paver without contact. The feed vehicle docks on without producing any jolts.

> The safety of the paving process is assured by automatic distance control and a collision protecting system.

> Conical worm conveyors in the receiving hopper of the feeder and a trough-shaped belt conveyor ensure that the paving material is homogeneously mixed.

Quality due to safe transfer of the mix – VÖGELE “PaveDock” and “PaveDock Assistant”

The “PaveDock Assistant” system and “PaveDock” push-rollers from VÖGELE make a perfect combination, ensuring maximum process safety when transferring mix in road construction projects without a feeder.

“PaveDock Assistant” is a simple and reliable communication system permitting optimum coordination between paver operator and feed vehicle driver. The signal lights mounted on the right and left of the paver’s hardtop and the associated controls on the paver operator’s ErgoPlus 3 console are key elements. The sprung “PaveDock” push-rollers efficiently absorb any jolts that may be produced as the feed vehicle docks on.

“PaveDock” and “PaveDock Assistant” from VÖGELE are a perfect solution, ensuring that the paver is safely supplied with material so that nothing is left to chance when transferring mix.

Optimum process safety when transferring mix without a feeder:

> The “PaveDock Assistant” signal lights ensure clear, direct communication between paver operator and driver of the feed vehicle. Control of the “PaveDock Assistant” is via the paver operator’s ErgoPlus 3 console for safe handling without errors.

> The “PaveDock” push-rollers are sensor-controlled. Any jolts produced when the feed vehicle docks onto the paver are efficiently absorbed by these push-rollers. They ensure that mix is transferred smoothly.

> The combination of “PaveDock Assistant” and “PaveDock” push-rollers results in optimum process safety when transferring mix.
Effective, high-quality material management is crucial in assuring the quality of the end product – the road. The powerful and efficient material transfer system from VÖGELE operates without unnecessary transfer points, ensures a permanent flow of mix and consistently prevents it from segregating. Use of a modern material feeder of the VÖGELE PowerFeeder generation is a safe and economical way to obtain a top-quality mix for paving.

The material feeders from VÖGELE are equipped with conical worm conveyors and a trough-shaped belt conveyor to ensure a more homogeneous mix and significantly improve its quality. The material is effectively prevented from segregating as it is transferred to the paver’s extra material hopper. This extra hopper has been designed without unnecessary edges and corners in order to optimize the flow of mix. Gently rising conveyors in the paver and a particularly effective system of augers with large-diameter auger blades ensure that a perfect head of mix is available in front of the screed at all times.

VÖGELE – Success Based on Perfect Material Management

Mix quality improved ten-fold

Effective, high-quality material management improves the quality of the mix ten-fold as compared to classical paving without a feeder.

The overall system of conically shaped worm conveyors and a trough-shaped belt conveyor in the feeder prevents segregation of the material during transfer of the mix and homogenizes it.

Gentle transfer of material without any loss of quality in the mix:

- Effective VÖGELE material management improves the quality of the mix ten-fold as compared to classical paving without a feeder.
- The overall system of conically shaped worm conveyors and a trough-shaped belt conveyor in the feeder prevents segregation of the material during transfer of the mix and homogenizes it.
VÖGELE – Screed Technology and Grade & Slope Control are Hallmarks

Quality based on precision

VÖGELE know no compromises where screed technology is concerned. It lies at the heart of every paver. Our screed technology has also been optimized during the development of the “dash 3” generation of pavers. The geometry of the tamper bar, wear bar and screed plate has been modified to give the screed a flatter planing angle. This is an important prerequisite ensuring a high-quality paved result.

The SmartWheel on the screed console is a major innovation reducing the number of paving errors. This rotary controller, which can also be operated “blindfold”, lets the screed be set to the required pave width with absolute precision. Two speeds are available to extend and retract the screed at high or low speed simply by turning the SmartWheel.

VÖGELE Niveltronic Plus, the high-precision automatic grade and slope control system, forms the basis for extremely even paving true to line and level on any base. Niveltronic Plus uses a variety of unique sensors which can be adapted quickly as required. Irregularities in the base are reliably detected and compensated so that the roadway is built with the required evenness and layer thickness.

For decades, VÖGELE have been developing their screed technology to perfection. Our goal is to achieve top paving quality in the form of maximum precision and evenness.

The new features of VÖGELE screed technology:

> Highly precise overall screed system forms the basis for producing a pavement of high evenness.

> Low screed planing angle due to an optimized tamper bar ensures better compaction and evenness.

> Hydraulic crown control through quick and precise adjustment on the operator’s ErgoPlus 3 console.

> Modern heating with uniform heating of the screed plates, tamper bar and pressure bar(s) for an absolutely uniform surface structure.

> Screed width control with telescoping tubes for perfect guidance ensures peerless sliding properties and precision during the paving process.
New developments from VÖGELE are always based on practical requirements. With “AutoSet Plus”, we have enhanced the efficiency, convenience and quality of key job site processes.

“AutoSet Plus” has two handy automatic functions. The repositioning function greatly facilitates the continuation of work when moving the paver on the job site from one work section to another, or after the paver has been transported. Simply pressing the “Execute” button quickly and reliably readies the paver for moves on the job site or for transport. Pressing the button again returns the machine to the previously stored working position.

The automatic function for paving programs, on the other hand, allows the operating personnel to store specific paving programs based on the paving process. Values for tamper and vibrator speed, conveyor and auger speed, height of the augers and pave speed can be stored at the push of a button. Once stored, the program can be retrieved and reused whenever needed.

By automating recurrent functions with “AutoSet Plus”, quality is improved and the paving process made more convenient.

Advantages of “AutoSet Plus”:

> Predefined paving programs can be selected and stored paving data retrieved at the push of a button. Automated paving programs ensure that the right settings and parameters are always used, regardless of the paving crew or the job in hand.

> All paver settings are automatically retrieved following a break in paving.

> The paver is automatically prepared for repositioning on the job site (screed, augers, conveyors, deflectors for the crawler tracks and front of the material hopper) at the push of a button.

> Precise, all-automatic restoration of the working positions when the paver has been relocated.
Quality based on heat measurement and optimization of the construction process

For VÖGELE, quality control is more than just a buzzword. Modern measurement systems allow the site supervisor to make certain improvements and optimize certain parameters during the construction process.

With the thermographic “RoadScan” module from VÖGELE, the temperature of the asphalt can be measured directly behind the screed. The results are made available to the paver operator and site supervisor in the form of significant values and clearly laid out graphs. In this way, the quality of the mix can be monitored and documented during the paving process.

If the VÖGELE “RoadScan” system is used in combination with WITOS Paving, the “Analysis” module delivers comprehensive assessments which provide significant basic information for the site supervisor, paving crew and manager of the mixing plant.

What’s more, the measured values can also be continuously forwarded to the HAMM rollers involved in the construction process and their HCQ Navigator for documentation and analysis of the resultant compaction (see page 18). Compaction quality can constantly be improved in this way.

Better quality roads through use of an MT 3000-2 material feeder: Using a VÖGELE feeder of the PowerFeeder generation allows mix to be supplied without interruption and without contact. Conical worm conveyors and a trough-shaped belt conveyor are combined with an additional flow-optimized material hopper in the paver to ensure an outstandingly homogeneous mix of excellent quality, without having to use complicated and expensive machine technology.

Quality enhancement through quality control:

- Modern infrared camera measures the temperature of the finished pavement.
- Precise analysis during the paving process and clear presentation in the form of significant graphs.
- Data are transmitted to the “JobSite” module of WITOS Paving to provide site supervisors and paver operators with comprehensive information directly on site.
- Measured values can also be sent to the HCQ Navigator or WITOS Compacting for the HAMM rollers. Compaction is considerably optimized as a result.
- The temperature of the base is measured and transmitted to WITOS Compacting / the HCQ Navigator from HAMM.
WITOS stands for “WIRTGEN GROUP Telematics and On-Site Solutions”. With WITOS, the WIRTGEN GROUP offers extensive, high-grade telematics solutions for fleet management and services, as well as for optimizing work processes in road construction. On the basis of experience with “lean management”, all work flows are analysed and made available to all parties with the aid of telematics systems. Processes are optimized and enhanced in the following areas:
> job site and machine planning,
> mixing plant and transport of the mix,
> paving with the road paver.

This innovation by VÖGELE additionally offers numerous documentation and analysis capabilities for sustainable optimization of the processes. WITOS Paving consequently plays a significant part in improving the quality of road construction, reducing construction times and boosting the cost-efficiency of construction projects.

Quality just in time

WITOS Paving – Revolutionizing Process Optimization

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Five WITOS Paving Modules

“Planning” module:
> Records all machine data and delivers real-time information on progress made on the job site and machine status.
> Suggests changes in paving parameters, such as reducing the pave speed if problems arise in conjunction with the delivery of material.

“Material” module:
> Calculates arrival times for material deliveries in advance and automatically reconciles desired and actual values.
> Makes it possible to supply the job site with mix on a just-in-time basis.

“Transport” module:
> Guarantees cost efficient fleet management and informs feed vehicle drivers of the required arrival times on the job site.
> Optimizes the lorry schedules and the number of lorrys required for each construction project.

“JobSite” module:
> Gives the site supervisor a complete overview of the entire construction project.
> Provides an overview of the mix quantities en route to the job site.
> Assists calculations, such as calculation of the remaining amount of asphalt still required up to completion of the job site.

“Analysis” module:
> Continuously analyses and visualizes all data determining the construction process, as well as the pavement quality.
> Draws attention to potential improvements and optimizations for future construction projects.

“Material” module:
> Calculates arrival times for material deliveries in advance and automatically reconciles desired and actual values.
> Makes it possible to supply the job site with mix on a just-in-time basis.

All processes associated with asphalt paving are optimized and made transparent with the telematics systems in WITOS Paving:
> Quantities delivered by feed vehicles, loading times, arrival times and paving parameters, such as paved weight or material consumption, are automatically displayed on the terminal unit on the job site. This creates a transparent data base for all parties involved in the process: efficient process management during the construction work is now a reality.

> Real-time data transmission permits just-in-time delivery to the job site and ensures that the right material is delivered to the right place in the right amount and at the right time.

Material shortages are prevented and non-productive times avoided for the paving crew and drivers of the feed vehicles.

> Comprehensive planning and analysis tools ensure extensive transparency and permit a durable improvement in quality, optimization of all part-processes and reduction in costs.
Non-stop, non-contacting VÖGELE feeder technology allows paving to proceed without interruption and without contact, and is essential to producing a high-quality paved result.

Conical worm conveyors
The system of conically shaped worm conveyors prevents segregation of the paving material and homogenizes it in the receiving hopper of the material feeder.

Conveyors in the paver
Gently rising conveyors in the paver ensure that asphalt is smoothly transferred to the auger tunnel.

Extra material hopper
The extra material hopper for the paver is specially designed with steep sides and without edges or corners to prevent material sticking to it, thus assuring a permanent flow of mix.

Trough-shaped conveyor
The special trough shape of the belt conveyor in a VÖGELE PowerFeeder guarantees stable transfer of the mix without segregation.

Augers
Augers adjustable in height and equipped with powerful separate hydraulic drives ensure a perfect head of mix in front of the screed for all paving jobs.

“AutoSet Plus”
Automatic “AutoSet Plus” functions ensure that the paver can be repositioned quickly and safely on the job site, and also make it possible to select predefined paving programs.

Latest generation of screed technology
The newest VÖGELE screeds have been technically optimized and ensure maximum evenness when placing road pavements.

VÖGELE “RoadScan”
The VÖGELE “RoadScan” system is an infrared heat imaging module which measures temperature values directly behind the screed. This permits permanent quality control during the paving process.

WITOS PAVING
Aided by telematics systems, WITOS Paving from VÖGELE optimizes all processes and provides valuable transparency and control of the entire production material handling of the entire paver, paving and analysis and documentation of construction projects.