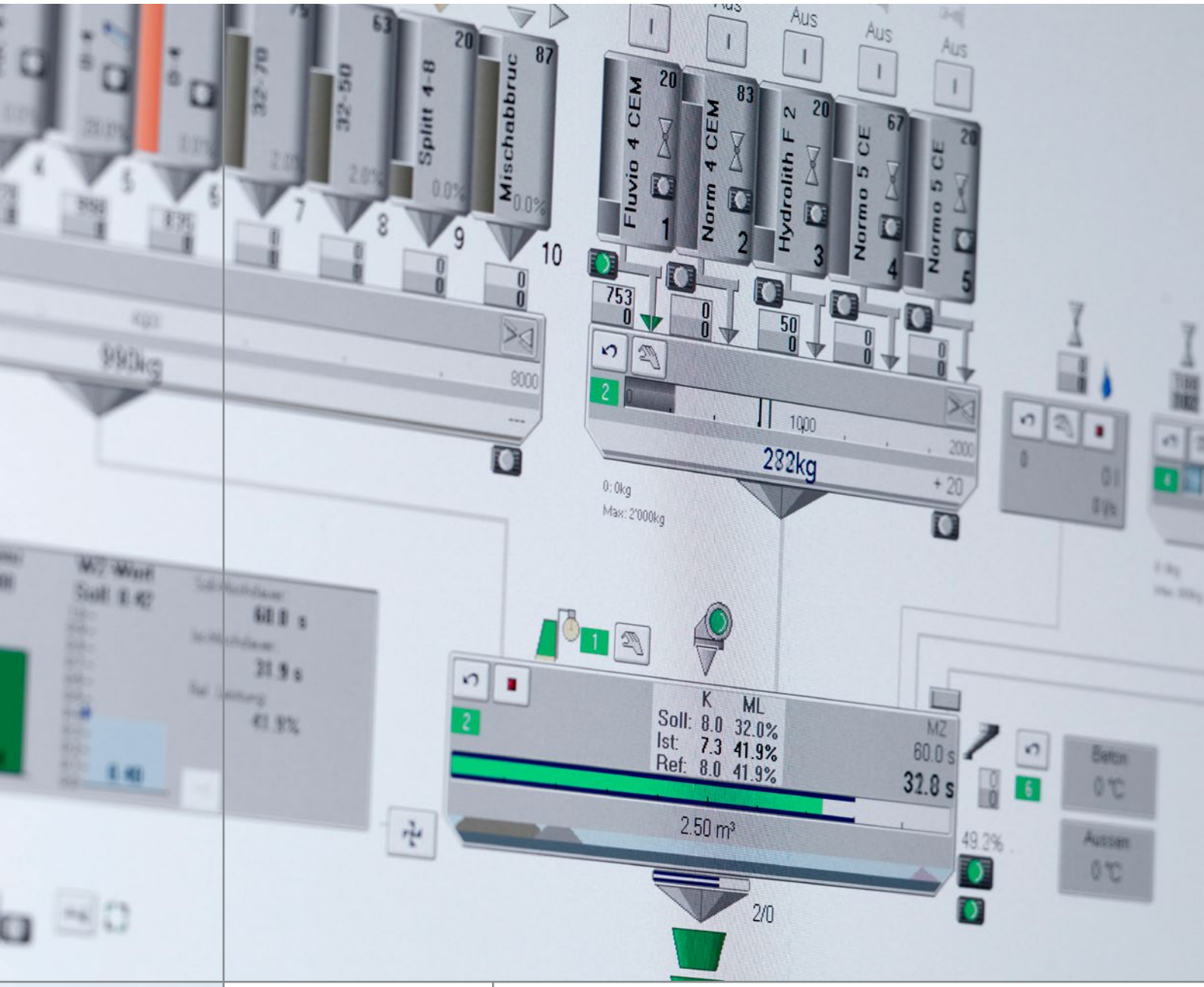
AMMANN



Controls and management systems

as1

Concrete, gravel, chippings and dosing plants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Innovation and quality as the basis for the future

Maximising productivity is the key challenge in today's economic environment. In the field of building material processing, innovative control engineering and computer science have become a decisive competitive factor. In addition to productivity, they affect the quality of the produced materials and the availability of plants.

Process engineering, tried-and-tested on a worldwide scale, combined with cutting-edge technology and a partnership throughout the entire product life cycle, form the pillars of Ammann's daily activities.

In collaboration with its customers, Ammann has succeeded in implementing practical and innovative solutions over many decades. Ammann system’s ongoing development and its renowned servicing protect the investments made.

Beside of the actual process control systems for asphalt and concrete mixing plants, gravel and chipping processing plants, Ammann offers an interesting range of products to support current and future operational processes, including networked solutions.


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The as1 system concept

Worldwide on a course for success

Benefits at a glance

- Comprehensive system functionality
- Quick & easy to learn and safe to operate
- Proven field bus and load-sharing concept with extremely high levels of reliability
- Professional hotline and support organisations ready for service worldwide

Ammann as1 software and hardware

Powerful, reliable in operation and proven worldwide
The powerful and future-oriented as1 system concept is comprised of our proven as1 software combined with especially matched industrial hardware.

The as1 computing environment has been especially designed and tested for use in tough environments. Its networking capability has also been given top priority. Customers profit from the flexible workstation configuration and networking to administration.

The field bus system

Guaranteed for reliable signal transfer
The proven fieldbus system is convincing with its robust design and reliability under tough operation. Faults can be detected efficiently and rectified by means of the diagnostic tools, even via remote support.

The power cabinet's components

Designed for tough, round the clock operation
The power cabinet's components have to withstand extreme stress 24 hours a day. For this reason, Ammann only uses tried-and-tested, globally available quality components from renowned manufacturers.

Reliable as1 hardware and software combination.

Ammann power units with field bus components.

as1 control and management systems

The industry solution for concrete and gravel producers

All as1 applications for asphalt, concrete, gravel, chippings and dosing plants are based on the same software platform. They share the following features:

Comprehensive functionality

Easy to use and highly automated
The experience gained through many successful projects has been incorporated in all as1 control and management modules. Ammann's target is to integrate many reasonable and logical functions into the user interface to accelerate learning and simplify use. The mix master is greatly facilitated by the high degree of automation.

Clear, unambiguous displays

The as1 displays for concrete, gravel, chippings and dosing plants are comprehensive, logical and clearly structured. Mix masters recognise the current system status at a glance and respond immediately to critical situations with appropriate measures.

Detailed process engineering

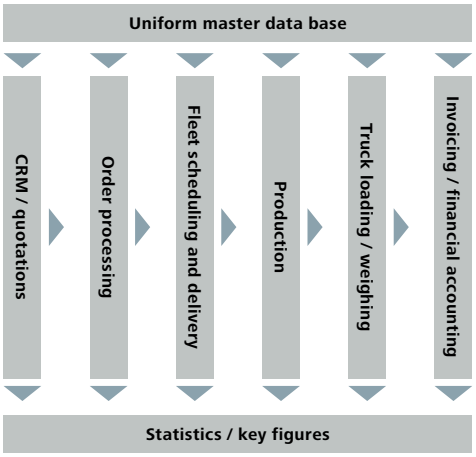
Ammann possesses extensive processing knowledge thanks to its experience as a control system and plant manufacturer. Customer requirements and new technological knowledge are constantly being added, tested and appropriately integrated into as1 applications. Plant operators benefit from this ongoing improvement process in the form of advanced as1 products.

Numerous statistics and reports

All as1 applications feature meaningful and practical batch records, delivery notes, statistics and reports. Valuable data can be exported in various formats for further processing.

Complete product range

Adapted to all requirements
The product range covers all customer requirements for concrete and gravel used in the manufacturing process, including Customer Relationship Management, local and central order processing, fleet scheduling and invoicing.



as1 plant control for concrete plants

Guaranteed high dosing accuracy and controlled water content

The implementation of process technology is of central importance to the production of quality concrete. The as1 system ensures high dosing accuracy and control of water content through sophisticated functions.

Concrete mixing plant, JustWhite type.

Automatic inflight correction

Changing environmental conditions lead to changes in flow behaviour, particularly where cement is concerned. Inflight correction implemented in the as1 system records and corrects these influences and ensures accurate dosing. Customers benefit from the economic use of aggregates and consistent and accurate concrete composition.

Clean and fast

Loading concrete into the mixer truck
Mixer trucks have a limited capacity for finished concrete. The as1 controller regulates quantities so that the mixer truck can be loaded as quickly as possible.

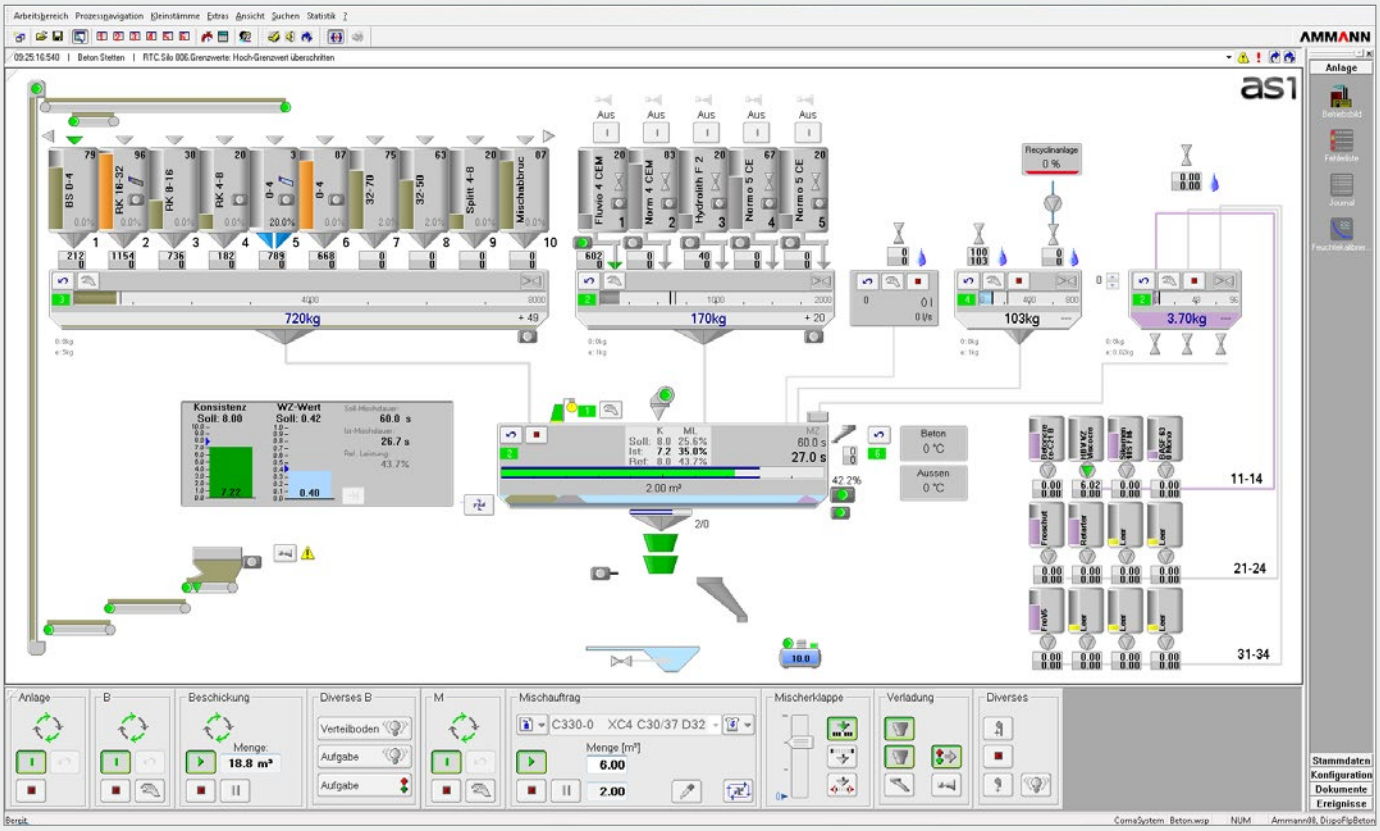
Concrete mixing plant, PowerMix type.

Dynamic consistency control

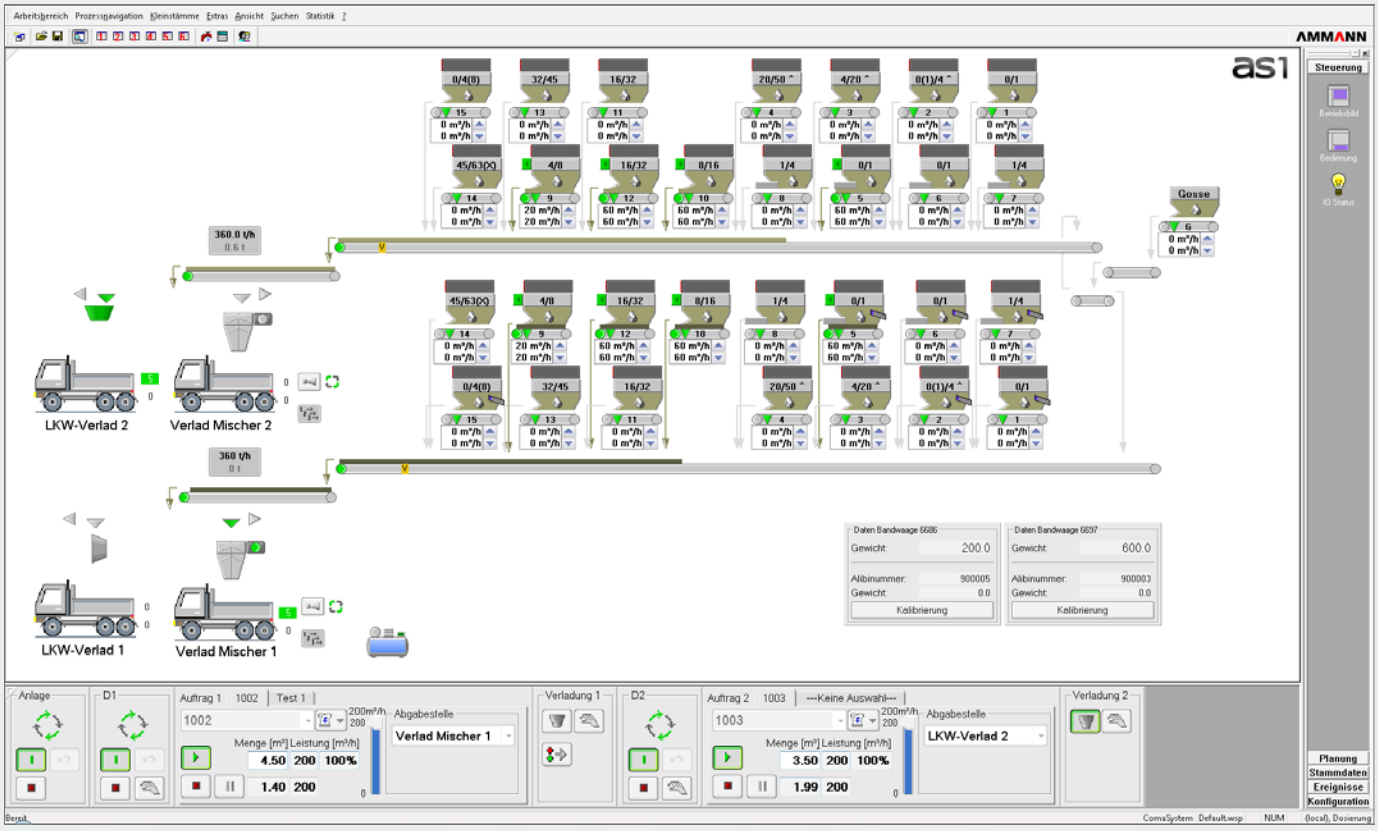
Ensuring water/ cement ratio consistency
The as1 consistency controls evaluate the mix resistance numerous times per second to measure the consistency. Using sophisticated algorithms, the as1 automatically determines the amount of water required and simultaneously corrects the water content. The W/C factor, which is extremely important for the consistency of the concrete quality, is closely monitored with the help of dynamic controls.

Dosing linearization

For volumetric concrete plants
The as1 dosing linearization function ensures that the granular composition is correct for the volumetric batching plant's entire spectrum.



Example of a concrete plant.



Example of a dosing plant.

as1 plant control system

For gravel, chippings and dosing plants

Ammann draws on its extensive experience gained from years of work in the field of control technology for gravel, chippings and dosing plants. It places particular importance on complete automation to facilitate the work of plant staff. The following examples illustrate this:

Benefits at a glance

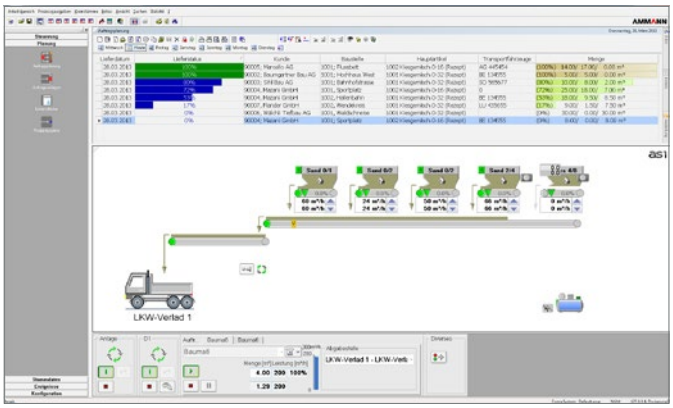
- Controls for gravel and chipping plants
- Dosing and material loading systems
- High degree of automation
- Multiple operating stations
- Applications for all capacity ranges
- Integration of additional as1 modules possible

Level-controlled supply

Aggregate silos are controlled in a fully automated way by a concrete plant central connected to a dosing channel, depending on the quantities of material required and the assigned priorities.

Consumption-oriented gravel production

The use of gravel recipes
The use of various gravel recipes ensures that even the rarest end product can be produced in the greatest quantities possible. The controller explicitly takes into account silo levels in the source and destination silos.



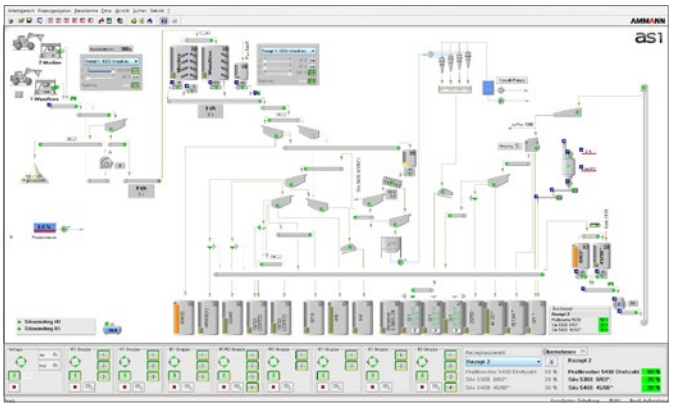
Example of a simple dosing plant with integrated order planning system for delivery notes.

Optimising the graveyard shift

The plant is unmanned at night yet continues production until all dosing silos are full. In the event of a malfunction, the system control switches the machine to secure status and alerts the responsible employees by SMS, for instance. In the morning, the full silos can be used to process cyclical requirements.

Self-loading at night

Customers can obtain material from the dosing plant at night, for example, by using identification cards. The presence of plant personnel is not required.



Example of a gravel plant.

as1 Site scheduling systems

Slimline and thoroughly organised

The planner is pivotal in the order processing system of a construction material processing plant. The Ammann work scheduling system provides him with a powerful tool which always keeps a comprehensive overview even in times of great stress. The following contribute to this:

Benefits at a glance

- For asphalt, concrete and dosing plants
- EN206-compliant
- Integration of weighbridges
- Simple, two-way invoicing system interfaces
- Integration of self-service terminals
- Integration of wheel loaders
- Integration of card identification systems

Order creation

Easily and quickly records orders
Orders can be created quickly and easily thanks to the as1. New customers or construction sites can be easily and directly created and used from the order. Intelligent search functions also save valuable time and prevent unintentional double-booking.

Order creation and processing for several production plants.

Overview ensured

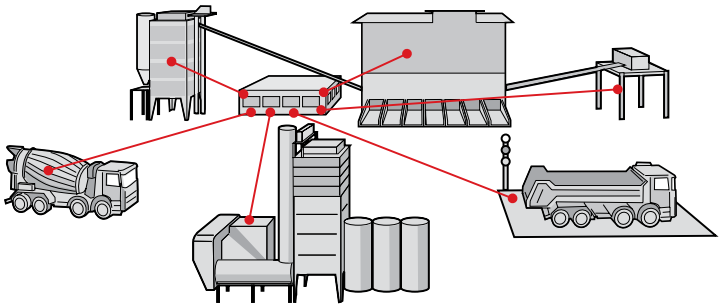
The use of graphic elements and colour ensures that planners can always keep a comprehensive overview. Many customisable settings also allow planners to adapt the automatic behaviour of the as1 system to their individual working methods.

One workplace for everything

as1 site scheduling systems offer added value: orders for asphalt, concrete and dosing plants, including weighbridges, can be placed and processed via a simple user interface.

Improved process quality

Thanks to identification card systems and self-service terminals
Correctly used identification card systems and self-service terminals facilitate the work of planners and improve operational processes and process quality.



Identification at the driver terminal.

as1 central scheduling systems

Central planning, local handling

Rapid development in the field of computer science and telecommunications has opened up new opportunities for networking and cross-plant collaboration among building material manufacturers. Ammann has gained wide networking experience in many projects that have been integrated into the as1 solution.

Benefits at a glance

- as1 work scheduling system expansion stage
- Customer-specific autonomy concept for high availability
- Automatic master and movement data reconciliation
- For asphalt, concrete and dosing plants

Cost reductions possible

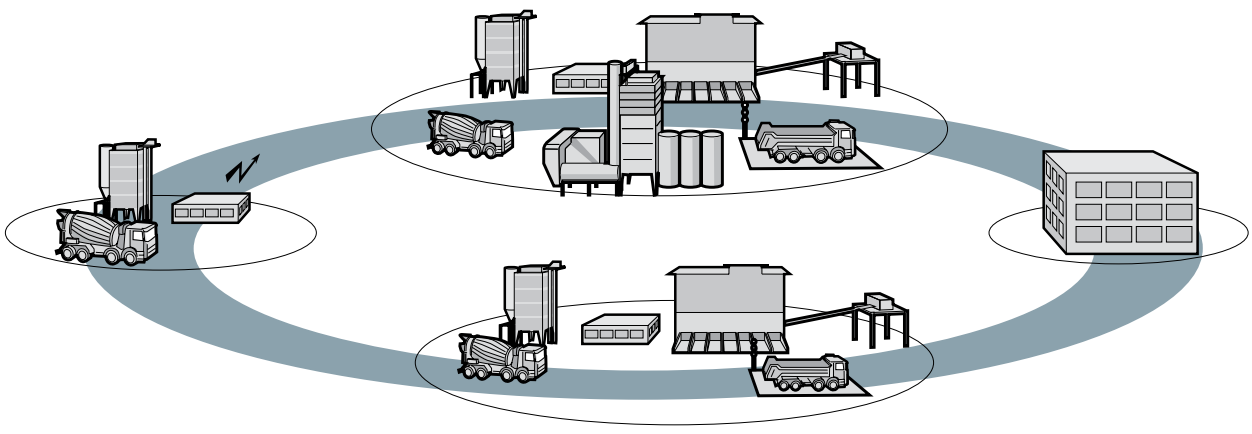
Tap your potential
The integration of local scheduling arrangements as part of a central scheduling solution for all plants improves the cost structure. These simplifications contribute to operational processes, optimise utilisation and exploit synergies.

No restrictions

Local storage in the event of a disconnection
Ammann features a sophisticated autonomy concept: all plants connected to the central scheduling system have their own databases which are constantly replicated with those in the central scheduling system. This ensures that users can continue working locally without restrictions, even in the event of an interruption in the communication lines.

One-time master data entry

Simplified data management with centralised master data entry
Thanks to the network, all master data such as that belonging to customers and construction sites must only be created once and can then be used by all plants. In addition, post-processing and error correction is reduced considerably by means of centralised master data maintenance.



Central fleet and delivery planning.

High flexibility

Thanks to centralised and decentralised operations
The as1 central scheduling system can record and monitor orders for all plants integrated in the network regardless of geographical distance. For example, depending on the configuration, orders at the plant itself can be determined for self-collection.

Intelligent tools

Ensuring the flow of information
The flow of information between operators at the plant and planners is affected by geographical distance and separate working practices. The as1 system bridges these interfaces by using intelligent features, thus ensuring the flow of information.

Telephone interface

Efficient phone calls made easy
The telephone interface connects the as1 central scheduling system with the telephone switchboard. This allows the contact information stored in the as1 to be used to make phone calls and send text messages.

as1 fleet and delivery scheduling systems

Prompt on site delivery

Unused production and vehicle capacity costs money. The as1 fleet scheduling and delivery system pursues the objective of optimising utilisation of the fleet and production plant through excellent adherence to delivery times. The as1 system supports the planner in solving this very complex task.

High transparency

As a basis for decisions

The planner's workstation displays order and vehicle overviews. In the vehicle overview, all orders are arranged by vehicle. Using drag and drop, orders can be transferred to other vehicles and the as1 system updates the order data.

Automatic reconciliation

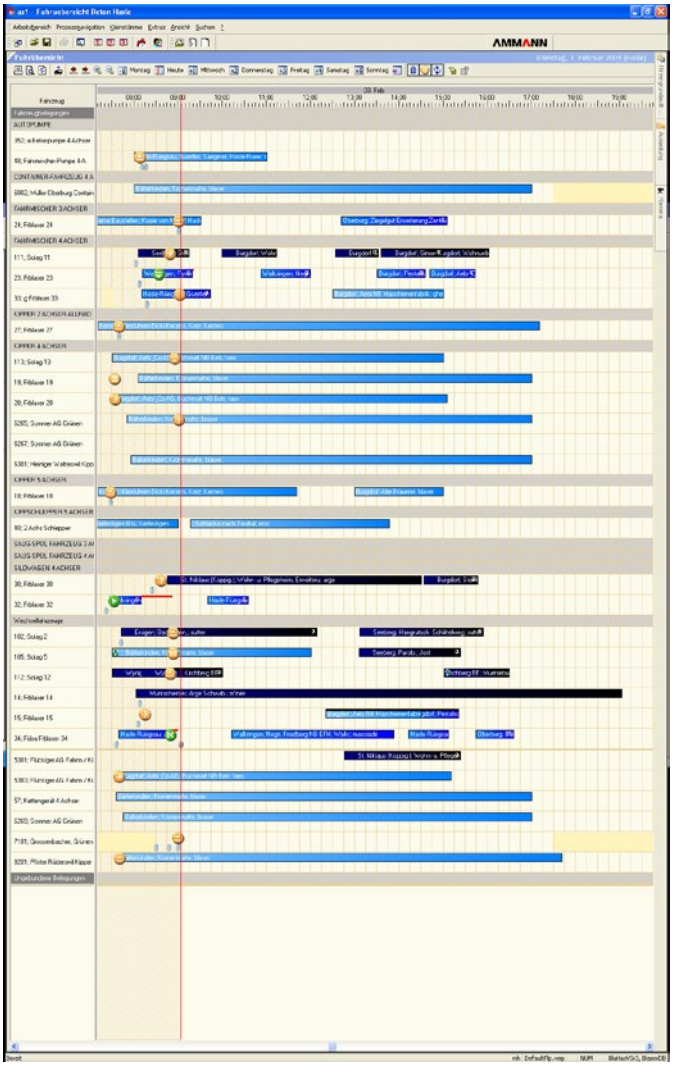
With the production capacity

The as1 system not only provides optimised utilisation of the fleet but also simultaneously checks production volumes with respect to the plant's maximum capacity. This prevents congestion forming in front of the plant which could otherwise lead to unproductive vehicles and delays.

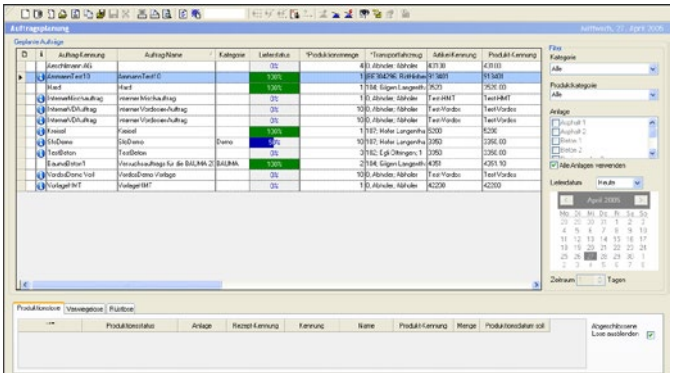
Stay in touch all the time

Real-time information to and from vehicles

Among other devices, Ammann also uses a Tom-Tom terminal for as1 communication with vehicles. The driver can retrieve details of his orders and navigate directly to the construction site through a simple user interface. The actual status of each vehicle is responsible for the continuous updating of the schedule to ensure prompt delivery. Status reports from the vehicles are generated automatically or can be easily sent via the touch screen.



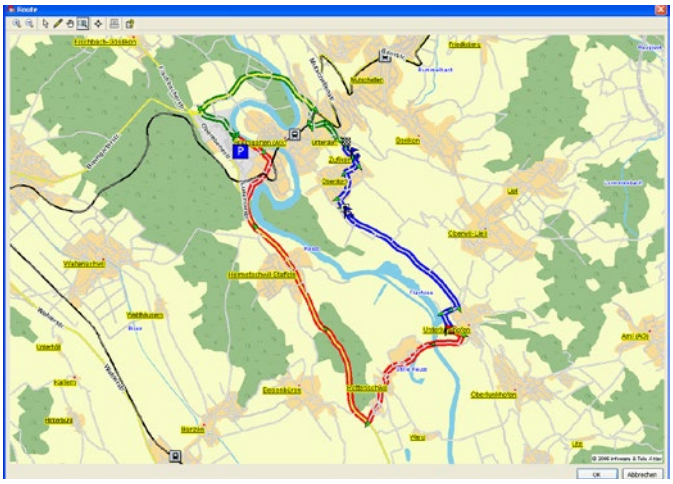
Example of vehicle fleet and delivery plans.



Example of order list.

Map module as a valuable tool

The map module is used to display and calculate the distances to the construction site data stored in as1. By displaying the current vehicle's position, the planner can easily reschedule vehicles when required.



Example of the map module.

Fleet optimisation

Intelligent algorithms make it possible
After initial scheduling, it may be necessary, due to delays, to proactively intervene in fleet management. The as1 system can take over this permanent optimisation activity on an automatic basis and therefore effectively relieve the planner of the task. The as1 optimisation procedure can be adjusted using the setting feature: slow optimisation, continuous optimisation or primary use of the same structures are representative of many other parameters.

Australia
Ammann Australia
Queensland
Tel. +61 7 3293 1111
info.aau@ammann-group.com

Austria
Ammann Austria GmbH
Neuhaus
Tel. +43 7232 29 9 44 0
info.aea@ammann-group.com

Benelux
Ammann Benelux BV
AB Weert
Tel. +31 495 453 111
info.abx@ammann-group.com

Brazil
Ammann do Brasil
Gravatai
info.abr@ammann-group.com

Bulgaria
Ammann Bulgaria
Sofia
Tel. +359 2 442 24 41
info.abg@ammann-group.com

China
Ammann Construction
Machinery Shanghai Co. Ltd. Shanghai
Tel. +86 21 5986 8811
info.acs@ammann-group.com

Czech Republic
Ammann Asphalt GmbH
Brno
Tel. +420 5 45175940
pavel.kucera@ammann-group.com

Dubai
Ammann Asphalt NME FZE
Dubai
Tel. +971 4299 1446
info.nme@ammann-group.com

France
Ammann France SAS
Créteil/Cedex
Tel. +33 1 45 17 08 88
info.afr@ammann-group.com

Germany
Ammann Asphalt GmbH
Alfeld (Leine)
Tel. +49 5181 760
info.aad@ammann-group.com

Ammann Verdichtung GmbH
Hennef
Tel. +49 22 42 880 20
info.avd@ammann-group.com

India
Apollo Construction Equipment Ltd
A member of Ammann Group
Ahmedabad
Tel. +91 79 6618 8888
info.ain@ammann-group.com

Italy
Ammann Italy S.p.A.
Bussolengo (VR)
Tel. +39 045 6764 911
info.ait@ammann-group.com

Ammann Development Italy S.R.L.
Savena (BO)
Tel. +39 0516258054

Kazakhstan
Ammann Representative Office Kazakhstan
Almaty
Tel. +7 (727) 259 75 63
info.akz@ammann-group.com

Malaysia
Ammann Asia Pacific
Kuala Lumpur
Tel. +60 3 21 16 96 18

Poland
Ammann Polska sp.zo.o.
Warszawa
Tel. +48 22 33 77 900
info.aep@ammann-group.com

Romania
Ammann Group Romania S.R.L.
Bucharest
Tel. +40 21 315 36 24
info.arm@ammann-group.com

Russia
OOO Ammann Russland
Moskau
Tel. +7 495 933 35 61
info.aru@ammann-group.com

Scandinavia
Ammann Scandinavia
Malmö
Tel. +46 40 699 83 70

Singapore
Ammann Singapore Pte. Ltd.
Singapore

South Africa
Ammann Construction Machinery
South Africa
Benoni
Tel. +27 11 849 3939/3333
info.aza@ammann-group.com

Spain
Ammann Iberia S L
Madrid

Switzerland
Ammann Schweiz AG
Langenthal
Tel. +41 62 916 61 61
info.aag@ammann-group.com

Turkey
Ammann Teknomak A.S.
Ankara
Tel: +90 312 386 22 11
ankara@ammann-teknomak.com.tr

Ukraine
OOO Ammann Ukraine
Kiev
Tel. +380 4449 904 55
info.aua@ammann-group.com

UK and Ireland
Ammann Equipment Ltd.
Warwickshire
Tel. +44 1789 414 525
info.ael@ammann-group.com

USA
Ammann America Inc.
Florida
Tel. +1 904 543 1691
info@ammann-america.com

www.ammann-group.com