

AUTOMATION / SOFTWARE SOLUTIONS

# AS1 CONTROL SYSTEM

CONTROL AND MANAGEMENT SYSTEMS  
ASPHALT MIXING PLANTS



150



Years of  
Innovation  
Since 1869

**AMMANN**







# INNOVATION AND QUALITY AS BASIS FOR THE FUTURE

**Maximizing productivity is the central challenge in today's business environment. Innovative control technology and IT have developed into a decisive factor in terms of creating a competitive edge in the area of building materials processing. In addition to productivity, they have considerable influence in the quality of materials produced and the availability of plants.**

Worldwide proven process engineering coupled with future-oriented technologies and partnerships during the entire product life-cycle are the pillars upon which Ammann's daily work is based. Ammann has been realizing practically-orientated, innovative solutions in collaboration with its customers for decades. The continuous development of Ammann systems and its recognized service, serve to protect the investments they make.

Ammann offers an extremely interesting product range covering all areas of process control systems for asphalt and concrete mixing plants as well as for mineral processing plants, providing support for existing and future operational processes, including networked solutions.



# AS1 CONTROL SYSTEM

**POWERFUL, RELIABLE AND PROVEN WORLDWIDE**

The powerful and future-oriented as1 system concept combines proven Ammann software with specially matched industrial hardware. The as1 computing environment has been designed and tested for use in tough environments. Its networking capability also has been optimized. Customers profit from the flexible workstation configuration, networking and administration.

## THE FIELD BUS SYSTEM GUARANTEED FOR RELIABLE SIGNAL TRANSFER

The proven field bus system is robust and reliable 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, which is why Ammann only uses tried-and-tested, globally available quality components from renowned manufacturers.

### HIGHLIGHTS

- Comprehensive system functionality
- Quick and easy to learn
- Safe to operate
- Proven, reliable field bus and load-sharing
- Professional hotline and support organizations ready for service worldwide

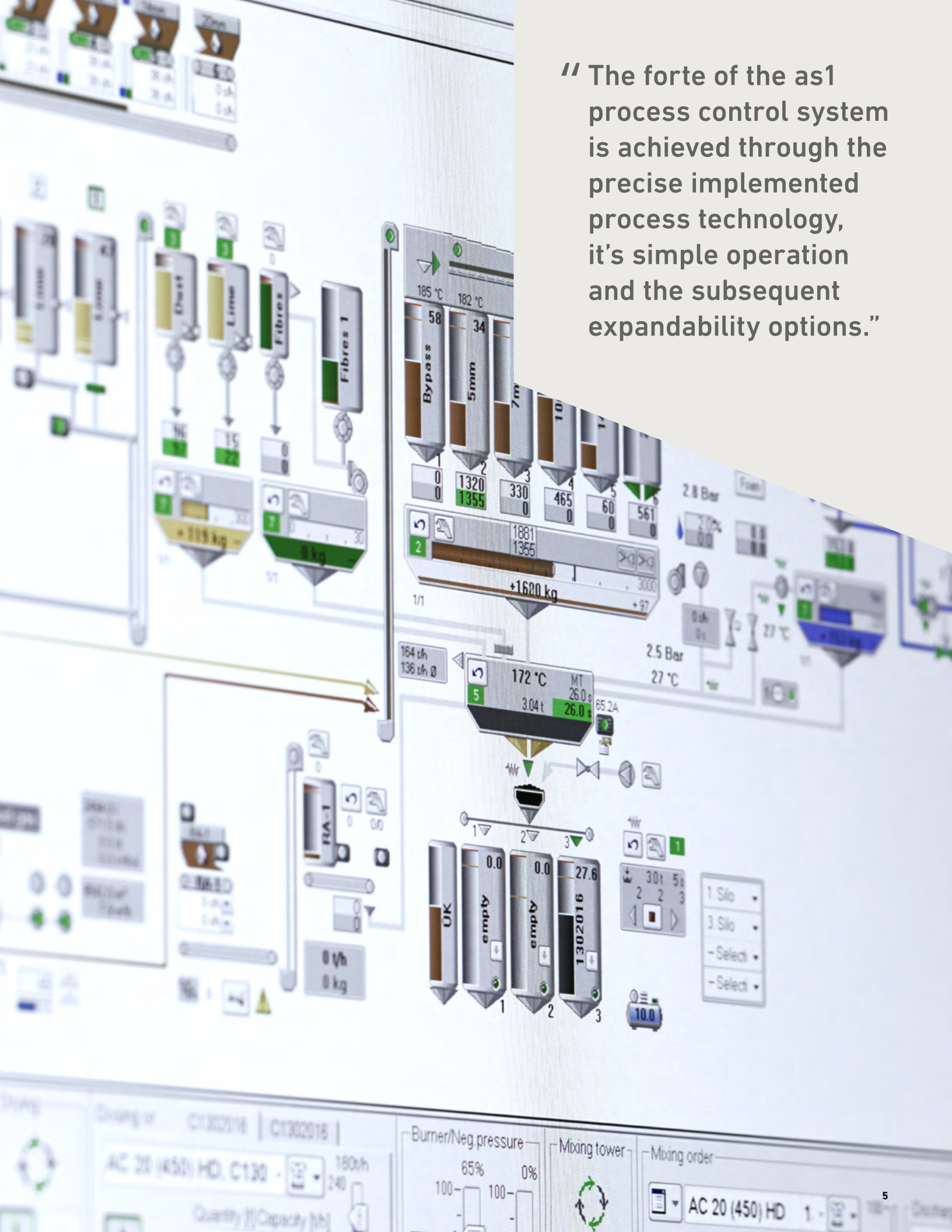
## HOTLINE AND SUPPORT PLANT AVAILABILITY ASSURED

Electromechanical faults can be quickly resolved by the customer's own personnel with the help of the electrical circuit diagrams and the as1 diagnostic tools.

Ammann's knowledgeable customer service team staffs the hotline, which can be called for fault diagnosis or maintenance at any time. Modern telecommunications media increase the availability of the plant and reduce the need for costly on-site servicing.







" The forte of the as1 process control system is achieved through the precise implemented process technology, it's simple operation and the subsequent expandability options."

# AS1 FUNCTIONALITY AT A GLANCE

COMPREHENSIVE SYSTEM WITH MANY USEFUL TOOLS FOR YOUR DAILY TASKS

## COLD FEEDING



- Unlimited number of cold feeding recipes
- Graded start-up control system for creating an optimal material spread with automatic sand advance function
- Composite or individual adjustment of the feeder proportions during running production
- Assignment and selection of any number of materials incl. calibration curve per feeder
- Combinable volumetric and gravimetric metering
- Indication can be switched over per mouse click (proportions/capacity/quantity/speed)
- Calibration wizard for easy calibration (incl. linearization)
- Dynamic visualisation of material spread on the conveyor belts

### Example from the options menu

- Automatic conveyor belt drainage
- Filling level measurement
- Feeding of Bunker silos

## DRYING AND DEDUSTING



- Control all type of Burner manufacturer
- Fully automatic burner step-up and step-down system (configurable)
- Automatic burner control for constant mineral temperatures
- Automatic negative pressure regulation
- Monitoring of material, raw gas and cleaned gas temperature
- Material temperature trend visualisation
- Burner diagnosis by means of trend visualisation and display of current automatic firing system status
- Control all types of filter manufacturers
- Dew point monitoring
- Automatic filler compensation

### Example from the options menu

- Differential-pressure-related dedusting
- Fuel/energy consumption prognosis (peak load monitoring)
- Single-button drying

## WEIGHING AND MIXING



- Production list for successive processing of several productions
- Support various dosing systems
- Dynamic inflight correction based on dynamic flow measurement for all components
- Self-learning automatic correction of the inflight parameters
- Automatic optimisation function for aggregate ratio to bitumen
- Dynamic switch point from coarse to fine batching for small quantities
- Automatic tare function of all weighing scales
- Silo switching in the event of material lack during production
- Possibility for parallel dosing
- Detailed logging and tolerance monitoring (configurable)
- Straightforward wizard for weighing scale calibration
- Freely programmable mixing process (order of weighing/weighing scale discharge)
- Convenient direct selection of recipes via onscreen menu
- Recipe change on the "fly"
- Automatic batch reduction during the warm-up phase

### Example from the options menu

- Multi-phase mixing system
- Required quantity calculator

## BITUMEN TANK STORAGE



- Full integration of electrically heated bitumen tank store (filling, circulation, transfer, mixing, evacuating)
- Temperature regulation
- Display of temperature and content
- Integrated, freely programmable timer for all heating's
- Bitumen delivery monitoring and logging

## LOADOUT BINS



- Automatic loading bin control
- Locking of silo loading based on bin content
- Freely programmable switchover to subsequent bin in the event of full target bin
- Integrated heating and display of load temperature

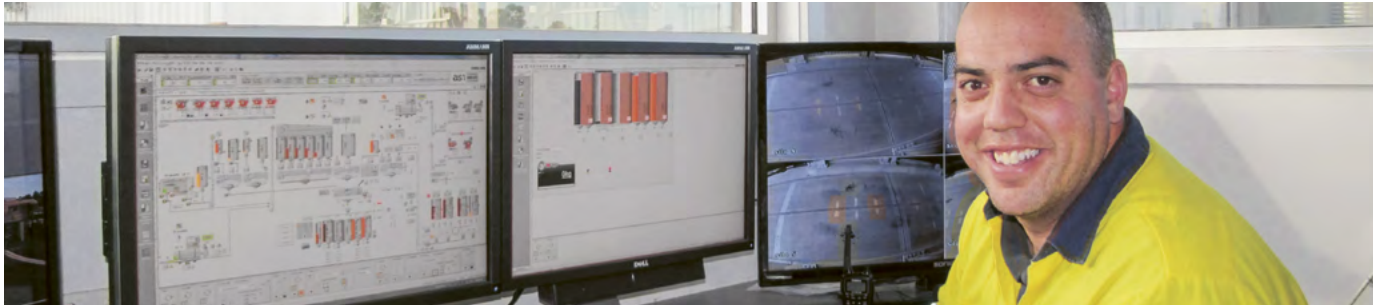
### Example from the options menu

- Balancing for the calculation of bin contents in combination with a weigh bridge



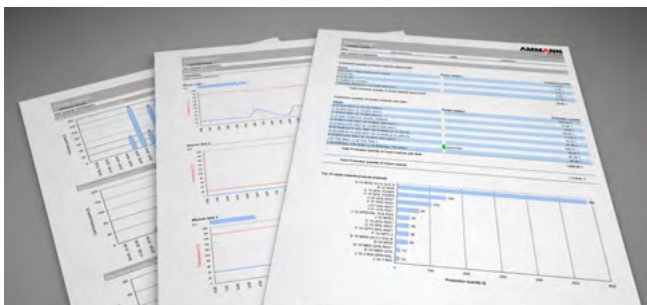
# HANDLING AND OPERATION

# FAULT DIAGNOSIS, SERVICE AND SUPPORT



- Clear and intelligible visualisation of the plant status in real-time
- Complete plant status available permanently at a glance
- Fully automated mix production
- Manual manipulation possible at any time
- Various modes selectable (repair mode, manual mode, automatic mode)
- Up-gradable to numerous workstations
- Broad choice of operating languages available
- Warning and error messages in clear text
- Numerous object-oriented parameters for plant settings and optimization
- Integrated backup solution
- Online operating manual
- Plant optimization, breakdown diagnosis and remote maintenance
- Configurable trend diagrams for plant monitoring and optimization
- Integrated oscilloscope
- Efficient troubleshooting by means of field-bus diagnostic tools
- Extensive event log
- Object-oriented event counter (e.g. hours, throughput, starts, etc.)
- Failure protocol
- Directly accessible wiring diagrams
- Remote maintenance access and diagnosis via Internet
- Automatic connection to the Ammann service platform and competent support through the Hotline Team

## REPORTING



- Batch protocol and batch summary protocol (mixing tower/cold feeding)
- Production and component statistics
- Capacity report (drying/mixing tower)
- Day report
- Event counter report (operating hours, etc.)
- Operating unit report for straightforward plant documentation



# AS1 ADDITIONAL MODULES

THE CONTROL SYSTEM CAN DO SO MUCH MORE

## **AS1 LOADOUT**

For automated truck loading and overload protection

## **AS1 DYNAMIC RECYCLING ADDITION (RAD)**

RAP ratio change during production with automatic recipe adaption

## **AS1 ECOVIEW**

Indicates how ecological the mixing plant is operated and shows trends

## **AS1 EXCEL ADDIN**

Indispensable for in-depth evaluations of as1 data in Excel

## **AS1 INTEGRATED MAINTENANCE MANAGEMENT (IMM)**

Supports the staff with the planning of the required maintenance tasks

## **AS1 SUPERVISOR VIEW**

The factual report

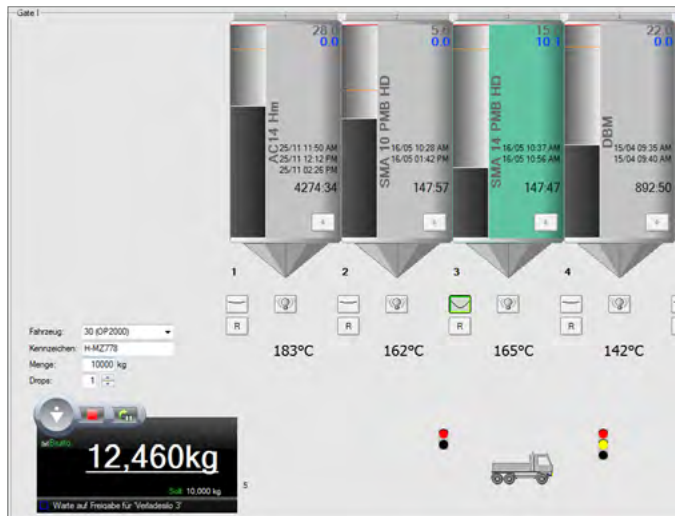
## **AS1 QUALIVIEW**

Helps localizing causes of defect and to improve asphalt mix quality

## **AS1 DOCUMENT ARCHIVE**

The protocols and predefined statistics are automatically converted into PDF files and are then saved and systematically ordered

# AS1 LOADOUT



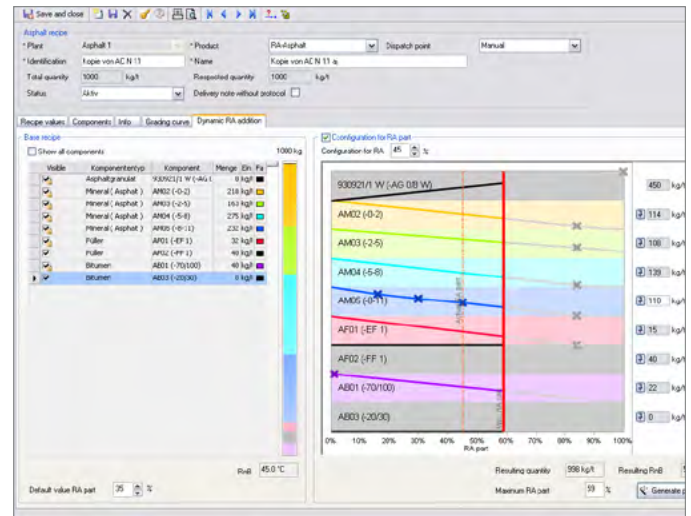
## THE RIGHT LOAD IS IMPORTANT

The as1 Loadout module is the logical complement of the as1 production control system. The enlarged view of the loadout silos offers additional information such as time stamps of the last filling and take out, silo content (Quantity and Article) and last loaded quantity. The view comes either on the main screen, a second screen or optionally on a separate workstation for the truck loading operator.

### HIGHLIGHTS

- Large display of the loadout silos on separate view with additional information
- Efficient and safe loading creates cost advantages and satisfied customers
- Increased safety thanks to integrated tare verification and overload protection of the vehicles
- Automatic level calculation of the loadout silos

# AS1 DYNAMIC RECYCLING ADDITION (RAD)



## VARIOUS RAP RATIOS IN A SINGLE RECIPE

Use of reclaimed asphalt protects natural resources and also offers economical advantages. The optional as1 module "dynamic RAP addition" makes it easy to modify the RAP ratio in accordance with requirements, even during production.

## TWO COMPENSATION OPTIONS

### QUANTITATIVE COMPENSATION

The correction of virgin material is carried out in relation to the quantity and composition of the RAP material.

### QUALITATIVE COMPENSATION

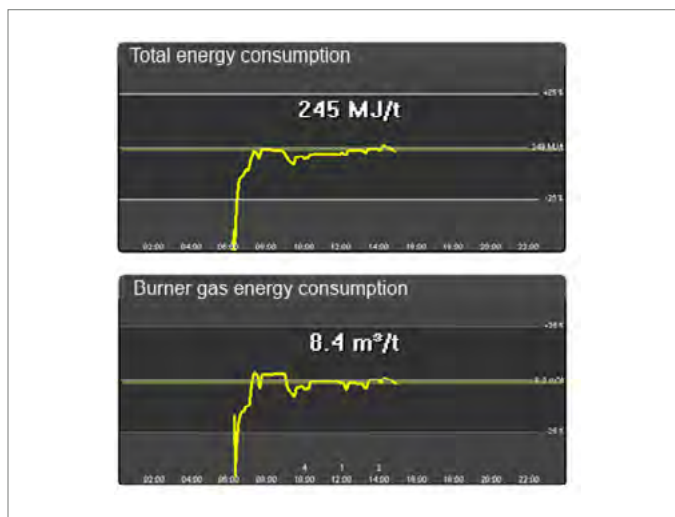
The correction of virgin material is carried out in relation to the quantity and composition of the RAP material in accordance of Ring and Ball specifications (based on the formulae detailed in EN13108).

### HIGHLIGHTS

- The integrated wizard guides operator through the recipe input process
- One recipe is sufficient for numerous RAP ratios
- Changing the RAP ratio by using the slide controls during production



# AS1 ECOVIEW



## ENERGY EFFICIENCY MADE VISIBLE

The additional module EcoView shows how efficiently your operators are running the plant. The operating data is continuously recorded and presented in condensed form to the operator.

The EcoView module informs in a simple way about the energy consumption and the according CO<sub>2</sub> emission values related to ton of produced mixed material. With the display compared with historical data or with explicitly defined target values, trends and actions may be recognized.

EcoView sensitizes and promotes an energy optimised operation of the mixing plant and helps to discover and eliminate energy waste.

### HIGHLIGHTS

- Intuitive operator display showing how efficient the plant runs
- Displays key values and enables comparison to reference values and previous periods
- Determines the emitted CO<sub>2</sub> values
- Determines the resulting energy costs

# AS1 EXCEL ADDIN

The screenshot shows an Excel spreadsheet titled 'Component statistics 01.02.2010 - 13.06.2010'. The table contains the following data:

	Delivery date	ComponentQty	ComponentQtyUnit	Component type	Component ID	Component Name
80	02.03.2010 11:21	132.145 kg		Bitumen	AB01	50-70
81	04.03.2010 13:29	264.018 kg		Bitumen	AB01	50-70
82	05.03.2010 12:15	2803.524 kg		Bitumen	AB01	50-70
83	05.03.2010 12:54	942.385 kg		Bitumen	AB01	50-70
84	05.03.2010 13:46	1897.5 kg		Bitumen	AB01	50-70
85	05.03.2010 14:20	708.434 kg		Bitumen	AB01	50-70
86	08.03.2010 07:27	945.926 kg		Bitumen	AB01	50-70
87	08.03.2010 08:13	733.684 kg		Bitumen	AB01	50-70
88	08.03.2010 08:22	183.844 kg		Bitumen	AB01	50-70
89	08.03.2010 10:48	183.026 kg		Bitumen	AB01	50-70
90	08.03.2010 10:51	170.598 kg		Bitumen	AB01	50-70
91	08.03.2010 10:53	383.953 kg		Bitumen	AB01	50-70
92	09.03.2010 10:47	420.371 kg		Bitumen	AB01	50-70
93	09.03.2010 11:35	393.288 kg		Bitumen	AB01	50-70
94	09.03.2010 12:29	394.494 kg		Bitumen	AB01	50-70
95	09.03.2010 13:35	397.344 kg		Bitumen	AB01	50-70
96	10.03.2010 07:39	806.176 kg		Bitumen	AB01	50-70
97	10.03.2010 10:07	814.44 kg		Bitumen	AB01	50-70
98	10.03.2010 12:14	1224.88 kg		Bitumen	AB01	50-70
99	10.03.2010 14:43	449.177 kg		Bitumen	AB01	50-70
100	15.03.2010 07:10	613.377 kg		Bitumen	AB01	50-70
101	17.03.2010 13:50	4591.678 kg		Bitumen	AB01	50-70

## INDISPENSABLE FOR IN-DEPTH EVALUATIONS OF AS1 DATA IN EXCEL

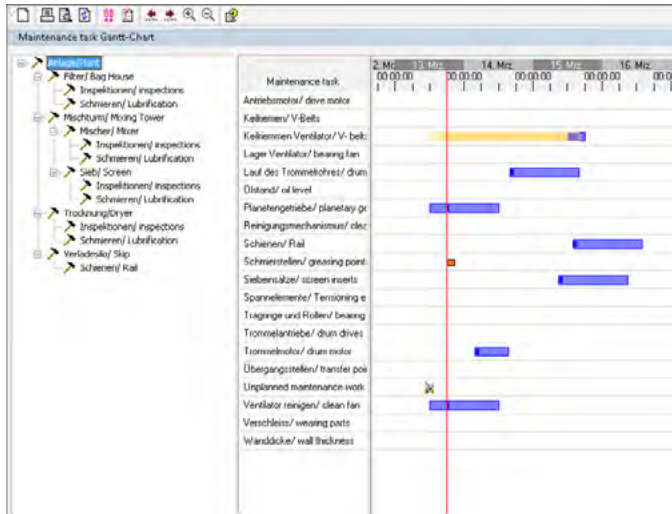
Ammann offers an AddIn for Excel for comprehensive data evaluation, as an extension of the broad menu of as1 standard reports. This ingenious tool makes your Excel as1-capable. This enables defined data to be imported into Excel where it can then be processed just as you wish.

### HIGHLIGHTS

- The requisite data can be selected from the comprehensive as1 data pool, imported into Excel and then evaluated
- Newly generated data can be seamlessly integrated at any time with a click of the mouse
- An effective tool for your individual evaluations in one trusted tool

# AS1 INTEGRATED MAINTENANCE MANAGEMENT (IMM)

# AS1 SUPERVISOR VIEW

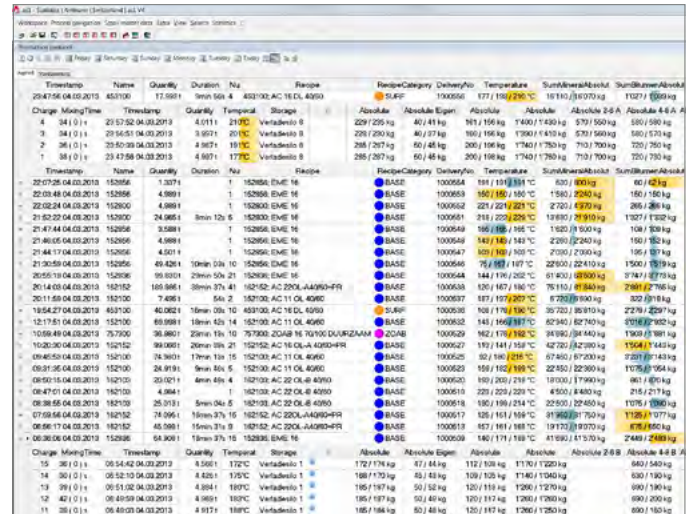


## MAINTENANCE DUE?

The as1 IMM Module supports the staff with the planning of the required maintenance tasks of the mixing plant. The module allows various maintenance tasks to be created and structured. Supported are maintenance tasks with fixed time schedules as well as event based tasks which are automatically planned based on the operating hours or the quantities processed on the plant. Store documents like work instructions or even short video clips to each single maintenance task.

## HIGHLIGHTS

- Planning of cyclic maintenance tasks
- Planning of event based maintenance tasks
- Listing of the due maintenance tasks
- Cost registration of the maintenance tasks
- Assignment of detailed, multimedia work instructions



## THE FACTUAL REPORT

The as1 Supervisor View presents the various production data, formatted into one clear and well structured view, with flexibility to colour code and breakdown the recipe categories. In a single glance it becomes immediately clear how much of which product was produced and how much recycling was used in it. In addition, any variations in product quality characteristics are immediately identified in the visual display. A simple click on the mouse is enough to verify the details of every batch produced, making this function a must have tool for any supervisor or production manager.

## HIGHLIGHTS

- Real-time display of the batch protocol of the on-going production
- Overview of the mixed material quantities in the selected time range
- Overview of the quality relevant data
- Overview of the used recycling quantities



# AS1 QUALIVIEW



## IMMEDIATE QUALITY REPORT

This module provides a production quality report that indicates the mixed product quality by indicating the deviation of each component in each batch. This graphical report can evaluate a single production or multiple productions with the same recipe. It serves as a quality assessment based on the measured values and is available for review immediately after production without waiting for the laboratory analysis.

### HIGHLIGHTS

- Evaluation of the production protocol data
- Graphical report per component
- Evaluation based on user defined quality standards

# AS1 DOCUMENT ARCHIVE

Typ	Produktionszeitpunkt	Kunde	Baustelle	LS-Nr.
LS	09.07.2009 08:19:01	397183, PATTEN PAVEMENT SERVICE 2	HAMS LANE 4642	
LS	09.07.2009 08:48:15	98781, NEGRI CONTRACTORS	1, EX BIN	4642
LS	09.07.2009 10:30:21	98765, SURFCOASTSHIRE	1, EX BIN	1000
LS	09.07.2009 10:33:14	90000, Pioneer P.R.S. Geelong	1, EX BIN	1000
PP	09.07.2009 10:39:25	90000, P.R.S. Geelong	1, EX BIN	5000
LS	09.07.2009 10:39:34	90000, P.R.S. Geelong	1, EX BIN	5000
PP	09.07.2009 10:39:35	90000, P.R.S. Geelong	1, EX BIN	5000
LS	09.07.2009 13:59:29	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:04:21	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:08:45	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:17:25	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:22:47	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:54:25	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 14:52:19	98765, SURFCOASTSHIRE	1, EX BIN	1000
LS	09.07.2009 15:23:34	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 15:24:41	98781, NEGRI CONTRACTORS	1, EX BIN	4642
LS	09.07.2009 15:30:52	93340, DIMAC CONS	1, EX BIN	4642
LS	09.07.2009 15:32:49	95038, GREATER GEELONG	2, LONGVIEW	4642
LS	09.07.2009 15:37:26	95038, GREATER GEELONG	2, LONGVIEW	4642

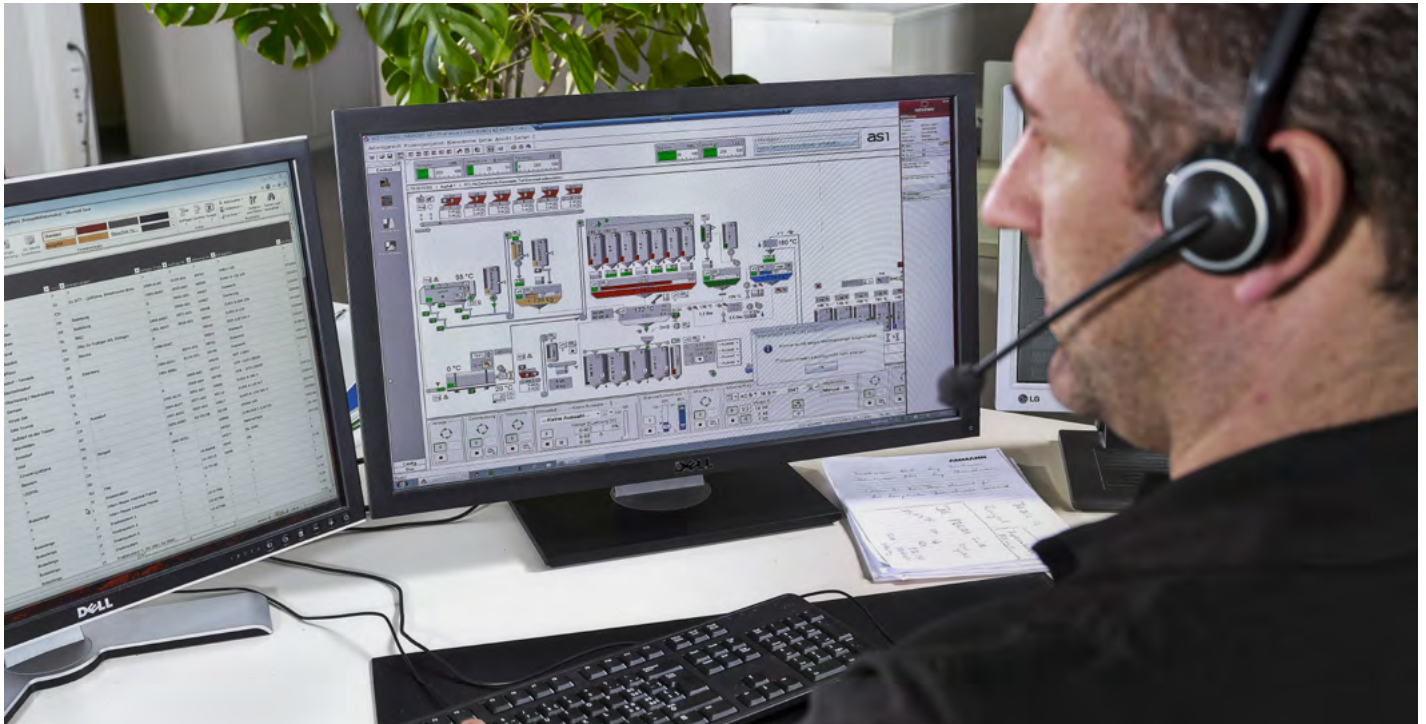
## AUTOMATIC PDF CREATION

The protocols and predefined statistics are automatically converted into PDF files and are then saved and systematically ordered. They can be searched for quickly and conveniently at any time by means of the integrated WEB application and then printed or stored on external media.

### HIGHLIGHTS

- Automatic conversion of production protocols into PDF files
- Automatic generation of periodic statistics into PDF files
- Ordered storage of the generated files
- Efficient search options

# HOTLINE AND SUPPORT



## PLANT AVAILABILITY ASSURED

Ammann experts are ready for you in emergency situations 24 hours a day, seven days a week. The help line team is highly trained and experienced. Representatives can talk you through the challenges – in many different languages – with a remote connection to your system that will minimize the troubleshooting time.

### INTERNATIONAL HOTLINE

- Experienced Hotline staff and use of modern communication media drastically reduces response time and therefore plant down time
- The Hotline is available 24h a day and 7 days a week
- You talk to experts who know your problems and have solutions ready
- Our Hotline staff speaks several languages
- The Ammann staff can connect to your Ammann plant control system via remote access for diagnosis and support

Electromechanical faults can be quickly resolved by the customer's own personnel with the help of the electrical circuit diagrams and the as1 diagnostic tools. Ammann's knowledgeable customer service team staffs the hotline, which can be called for fault diagnosis or maintenance at any time. Modern telecommunications media increase the availability of the plant and reduce the need for costly on-site servicing.



# TRAINING



## FULFIL YOUR PLANT'S POTENTIAL WITH TRAINING

Your plant features components engineered for productivity and technology that can deliver benefits unheard of just a few years ago. Yet those components and that technology are only as good as the operator using them. How can you help operators make the most of the tools at their disposal? The answer is training.

### WORLDWIDE TRAINING CENTRES

Ammann has more than 10 regional training centre locations around the world.

Key teaching themes connect them all.

- A good balance. The centres combine a traditional classroom setting with hands-on experience, including the availability of plant components for maintenance lessons.
- Experiment without consequences. The as1 control system simulator provides operators with realistic scenarios without running the risk of wasting material or causing plant downtime. Operators can experiment and learn from their mistakes – without costly consequences to your operations.
- Learn from peers. Operators from other facilities attend the training. Participants say the conversations with their peers – and learning how they overcome challenges – is another key benefit.
- Learn in your language. Lessons are taught in many languages, ensuring your team understands key terms and lessons and makes the most of your investment.

In addition, Ammann experts can customize a curriculum for your needs and work with operators and managers at your facility. The advantages include hands-on experience with your equipment and the ability to involve more of your staff than would likely be sent to a regional training centre. Choose from the Ammann training modules.

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