

WinMix for Asphalt Mix Plants – Brief Presentation

WinMix is an integrated package of electronic equipment and software, especially designed to automate the production and management of asphalt mix plants.

WinMix parameterized environment allows the adjustment of production with great detail and maximum flexibility.

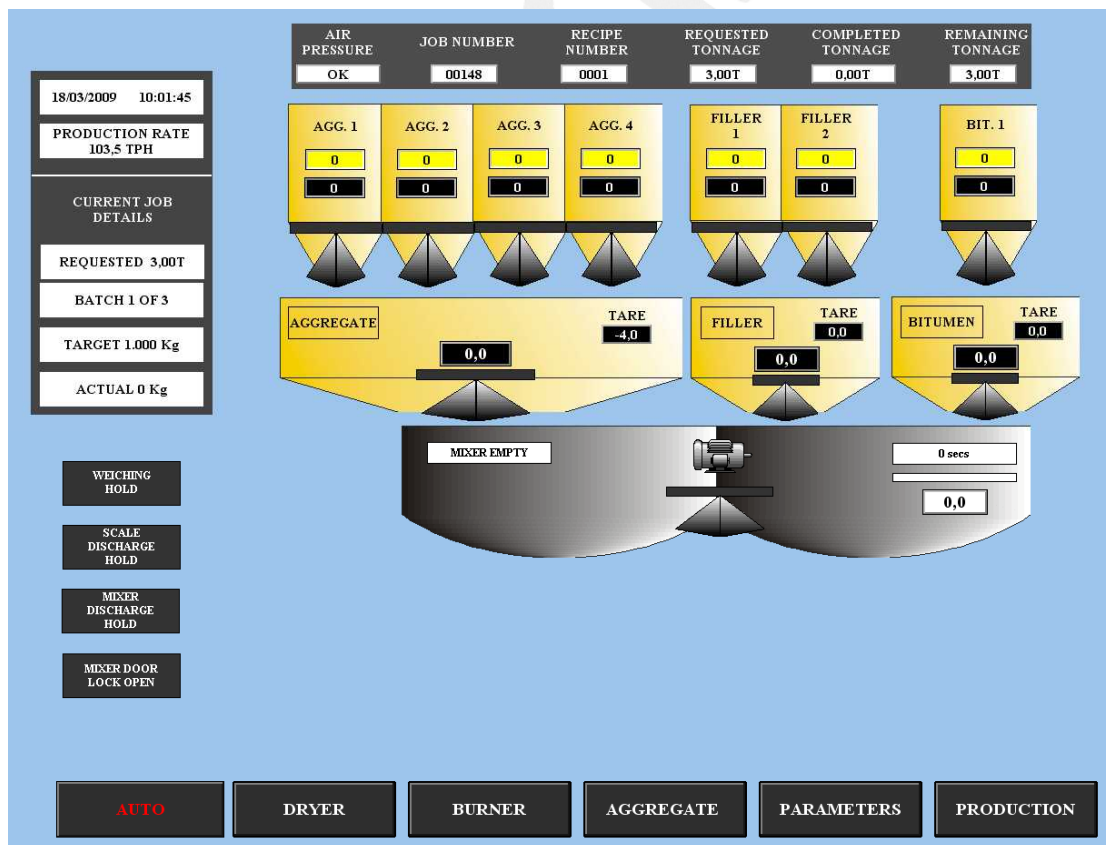
Design, implementation and development of the application were accomplished using pioneering technologies and methods based on advanced software designing and deploying tools.

WinMix is **Windows XP** and **Vista** compatible.

Plant control is achieved through the interconnection of plant sensors and activators. Software employs state of the art I/O modules.

Powerful user friendly system

WinMix is a very powerful and user friendly control and management system for asphalt mix plants. Daily operation is smoothly performed through ergonomic and easy to use PC forms.



SQL data base – production monitoring and analysis

WinMix is supported by a powerful **SQL** data base, containing tables for operational parameters and time stamped production data logging.

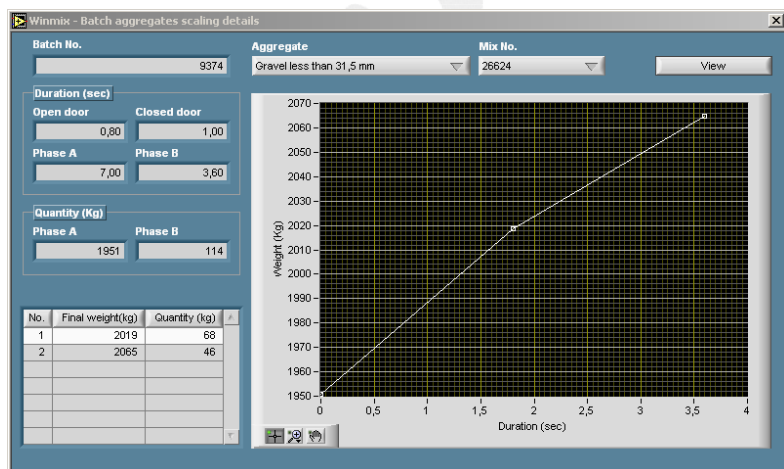
Operational status and production quality are characterized by the following 5 factors:

1. Weighing accuracy

All weighing data relating to the ingredients for each and every batch are automatically logged in the system's data base.

In particular, system automatically logs the target as well the actual result of each ingredient being weighed.

Using the special weight analysis tool, it is possible to examine all phases of weighing, i.e. coarse as well as the fine weighing.



2. Temperature data.

Through monitoring of pyrometers output, **WinMix** continuously controls and logs in the data base the temperature of specific locations of the production process.

3. Plant productivity

Plant productivity is generally determined by the processed material quantity per time unit. This is expressed by the corresponding material flow rate in t/h or in Kg/sec.

WinMix continuously logs the flow rate for each distinct production process as well as the total asphalt mix production rate.

These production rates provide the index which represents plant productivity.

A special breakdown process cycle overview visualization module is available, using the Critical Path Method Analysis.

4. Energy consumption.

WinMix continuously monitors and logs in data base the overall electrical energy consumption, as well as the detailed consumption for each one of the main motors (mixer, air blower), using special electronic energy analyzers.

These energy analyzers measure and monitor all electric energy consumption parameters, i.e. current, tension, $\cos\phi$, active and reactive power, frequency and so on.

Based on above measurements special electric energy consumption indices are calculated for each of the main motors (mixer, fan) as well as for the total plant electric energy consumption.

In a similar way the burner's fuel consumption is continuously monitored and the corresponding index is calculated.

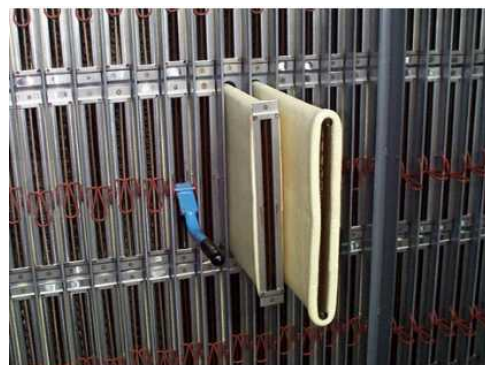
Energy consumption rates are associated with the corresponding production flow rates, thus enabling the evaluation of the corresponding production efficiency rates..

5. **Air pollution.**

Dust emission is continuously monitored through special sensors installed at selected locations of the plant.



Bag filters are also continuously monitored through differential pressure sensors.



All data related to above five factors, are continuously logged in data base for each and every production batch.

The accepted high and low limits of all above measured parameters are adjusted through the parameter control panel.

Alarm system

In case a process parameter exceeds normal limits the system automatically creates an alarm containing all necessary information regarding this deviation.

Operator must acknowledge the alarm and take corrective action.

WinMix can automatically forward alarms using email or SMS to inform authorized receivers, for example our technical support team.

Remote supervisory control and corrective action

WinMix possesses a very strong state of the art automatic fault diagnostic, reporting and allocation system.

Supervisor quickly and easily locates problems that occurred during a production period (day, week etc) using this special fault diagnostic tool. This can be done remotely, through internet.

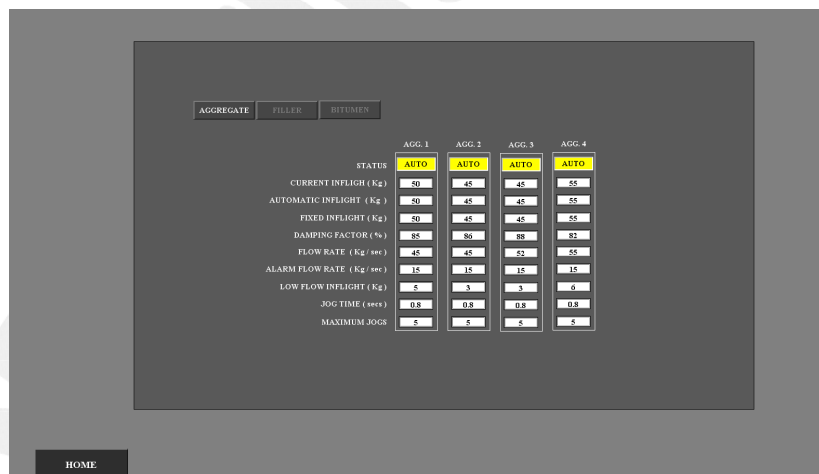
Most of the problems are remedied by proper re-adjustment of the corresponding operation parameters, which also can be done remotely.

In case problems require a visit to the site by a specialist, a full fault diagnosis-done remotely- is available in advance

This exclusive **WinMix** feature is essential in terms of reduction of maintenance cost and plant downtime.

No more costly site visits are necessary for problem allocation, analysis and corrective action because:

1. All action can be done by our technical staff in a few minutes after the problem occurs, through remote system access, thus drastically reducing plant downtime or faulty production.
2. All expenses connected with site visit (air tickets, hotels etc) are avoided
3. Even for those few cases, when a site visit will be necessary, unpleasant surprises are avoided. Before traveling, the specialist is able to diagnose the exact nature of the problem and make all necessary preparation regarding tools and spare parts required.



	AGG. 1	AGG. 2	AGG. 3	AGG. 4
STATUS	AUTO	AUTO	AUTO	AUTO
CURRENT INFLIGHT (Kg)	50	45	45	55
AUTOMATIC INFLIGHT (Kg)	50	45	45	55
FIXED INFLIGHT (Kg)	50	45	45	55
DAMPING FACTOR (%)	85	89	88	82
FLOW RATE (Kg/sec)	45	45	52	55
ALARM FLOW RATE (Kg/sec)	15	15	15	15
LOW FLOW INFLIGHT (Kg)	5	5	5	5
JOG TIME (secs)	0.8	0.8	0.8	0.8
MAXIMUM JOGS	5	5	5	5

Laboratory module WinLab

WinMix can be equipped with **WinLab**, which is an extra module for laboratory control. This additional module secures the proper lab operation, as all tests' calculation are done by the system, while lab operator only logs the test data in the proper test electronic forms.

The lab supervisor smoothly accesses the **WinLab SQL** data base via internet, controls lab test results and suggests corrective action. This drastically reduces lab supervisory costs, while supervisor "site visits" are much more frequent, which eventually translates to increasing quality and reducing production costs.

Video enhanced user manual and system troubleshooting

WinMix is supported with a special video support module parallel to the classical user manual.

Operator receives video enhanced guidance by expert engineers and system supporters. A very easy and effective index system helps operator in locating the proper video.

System simulation module

WinMix is equipped with a special simulation module. Operators may practice in the use of the system, while off line.

Remote touch panel for flexible plant control and monitoring

Frequently, during maintenance or plant systems troubleshooting, technicians need to be next to the system under examination (the bin doors for example) while being able to manoeuvre it.

A special tablet pc with wireless cart and touch screen is available for checking the plant systems. The operator is able to control the plant with this tablet pc, which is connected via **WiFi**, to the main PC in control room.

This strongly facilitates plant system check or maintenance, since all job is done by the same person, thus avoiding delays and misunderstandings inherent with the classical method to communicate with control room and ask the operator to execute the proper manoeuvres.

Multilingual module

WinMix is equipped with a special multilingual module.

Weigh bridge integration – eScale

WinMix can be equipped with **eScale**, which is an extra module for weigh bridge integration. With this module weigh bridge operation is enhanced as follows:

- Fully unmanned operation
- Automatic lorry identification using either RFID tags or automatic lorry plate recognition photo analysis.
- Weighing results auto transfer to system SQL data base for further elaboration.



Load out system - Delivery tickets

WinMix can be equipped with an extra module for job order and delivery tickets management.

This module permits data bridging with any **ERP** system, used by the client.