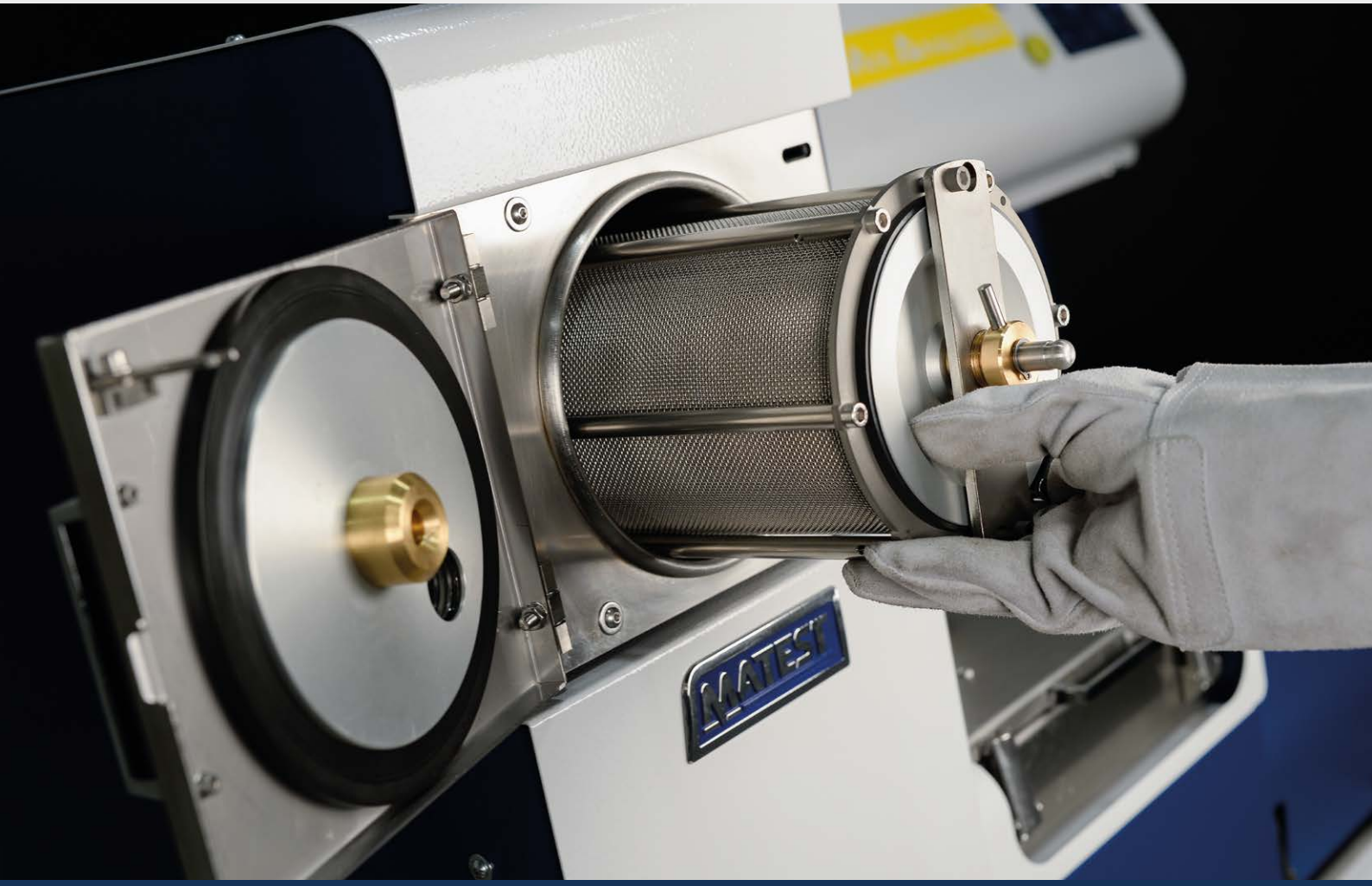
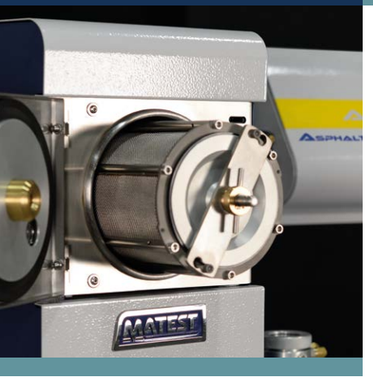
MATEST®
INNOVATIVE. GLOBAL. MANUFACTURER.

AMA **ASPHALT MIX ANALYZER** AUTOMATIC CLOSED-LOOP SYSTEM



SUPERIOR AUTOMATIC BITUMEN EXTRACTOR

INNOVATIVE | ACCURATE | SAFE



B003

AMA
ASPHALT MIX ANALYZER
AUTOMATIC CLOSED-LOOP SYSTEM

STANDARDS: ASTM D8159 I EN 12697-1

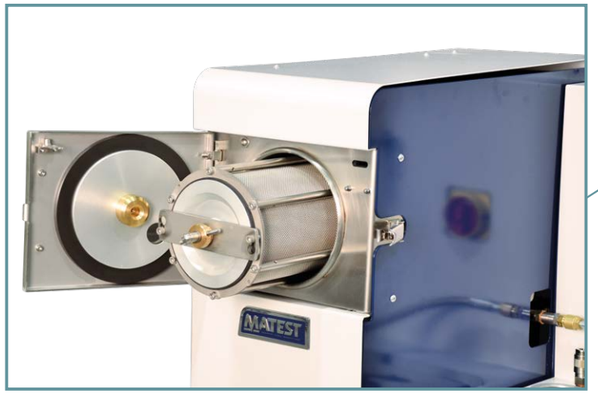
The Asphalt Mix Analyzer (AMA) is an innovative device capable of combining all the processes associated with bitumen extraction and recovery. The unit has been designed for the purpose of determining the bitumen content in asphalt mixture and it is the best solution to analyze and characterize the properties of the reclaimed asphalt pavement (RAP).

By using a selectable solvent tetrachloroethene, trichloroethylene, or methylene chloride the process effectively separates aggregates and filler from bitumen, enabling the verification of bitumen content and the assessment of aggregate gradation quality in the mixture.

TECHNICAL SPECIFICATION

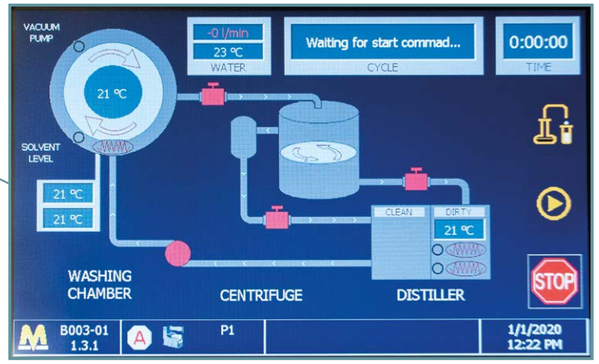
- Maximum sample weight: 3.5 kg
- Centrifuge rotation speed: 8000 r.p.m.
- Scale: 10 kg, 0.1 g res.
- Cup dimensions: Ø120 mm x 200 mm height
- Extraction time: Less than 1 hour depending on the mix tested (including drying time)

Power supply: 380V 50Hz 3Ph
Dimensions: 1400x750x1500 mm approx.
Weight: 240 kg approx.



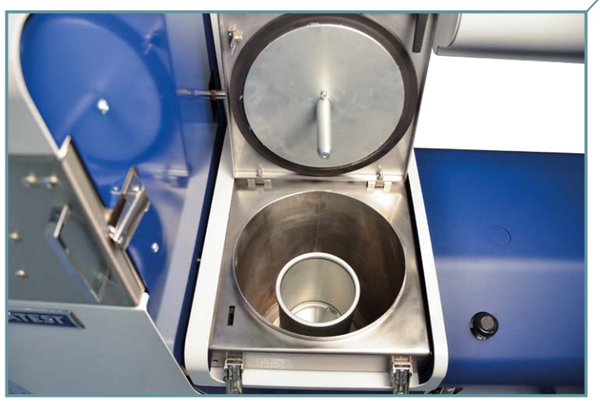
WASHING CHAMBER

- Equipped with heating and ultrasonic system.
- Up to 3.5 kg of asphalt mix tested.
- Inspection window used to monitor the solvent level.
- Basket kept in motion for an easier extraction.
- Basket mesh selectable according to the filler (63, 75 or 90 µm).



INTERFACE

- Stylized representation of machine components.
- Monitoring of test parameters in real time.
- Indication of the temperatures reached both in the washing chamber and in the distiller.
- Cycle stage and time inidication.
- Water temperature and flow indication.

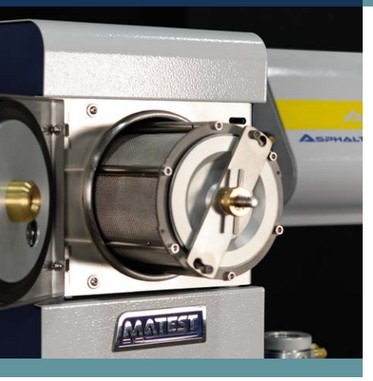


CENTRIFUGE

- High speed centrifuge action (8,000 rpm).
- Possibility of recovery up to 300g of filler.
- Window on the cover to monitor the color of the solvent.
- No noise centrifuge motor.

DISTILLER

- 100% stainless steel to prevent corrosive phenomena.
- 2 heating elements provided to choose the desired distillation level.
- Spray nozzle for chamber cleaning.
- Heating elements temperature set at the factory according to the solvent used.
- Heating elements with safety to prevent overheating.
- Solvent level can be monitored from the outside.



INNOVATIVE

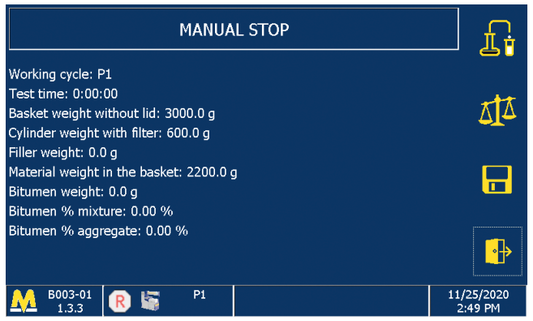
AMA represents the results of 2 years development in cooperation with Italian and European companies operating in the asphalt industry, according to the latest standards and requirements.

It has been designed from the end user point of view to make it simple and superior. It is the easiest, safest and most precise way to calculate the bitumen content of an asphalt mix.

The only machine that can perform the whole task, from extraction to calculation.

FULLY AUTOMATIC CYCLE FROM START TO END

Fully automatic test from the sample insertion to the end of extraction through the use of a solvent-resistant automatic valve for the passage from the pre-washing to the washing phase.
It allows the addition of a closed washing cycle to accelerate the extraction procedure so that, at the end, NO manual operation is needed, and the operator is free to spent his time in other analyses.



SUPERIOR INTELLIGENCE

AMA is not only used for bitumen extraction but also delivers all the essential data for analysis, making it a superior machine.
The operator manually, or via an integrated balance, enters the test weights before and after the test.
AMA automatically indicates the bitumen content, assuring a high precision and repeatability.

DATA EXPORT AND RECORDING

AMA is a unique model that allows test data to be saved via USB and saving data in ".txt" format for each test.
This allows the operator to save or print test results, or open a report of a previous test for comparative analysis.

AMA gives the chance of exporting files in .TXT format for easy use and the creation of customized excel reports.

HIGH QUALITY DESIGN

AMA is 100% designed with stainless-steel and solvent resistant components for long-lasting equipment, without losing sight of the importance of an ergonomic and appealing design.
Weight and dimensions are designed for both laboratory and site use. AMA can be placed on a mobile van for on-site tests or in any laboratory, the wheels make it easy to position.

INDUSTRIAL DESIGN, ITALIAN STYLE

Our team of engineers have developed this machine using their innate sense of style and creativity, while ensuring stringent compliance with the latest international standards.

Functionality and aesthetics are combined in this product as shown in its modern contours, backlit labels and intuitive user-interface.

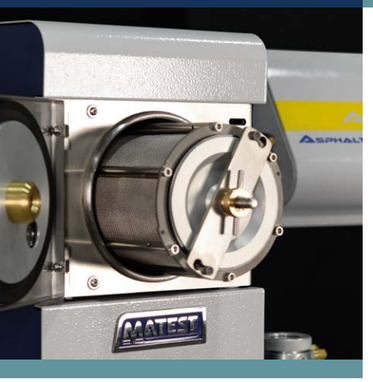
NEW INTERFACE WITH NEW ICONS

Show active alarms
Errors or malfunctions

Test archive
Saved test data / results

System configuration
Channels, profiles and parameters setup

Control panel
Date, time, language and firmware configurations



ACCURATE

AMA is composed by a stainless-steel washing chamber where the combination of solvent, temperature and ultrasonic pulses devide bitumen and filler. Subsequently, thanks to a high-speed centrifuge process, filler is divided and collected into the centrifuge cup while the bitumen solution is drained off to the solvent recovery chamber.

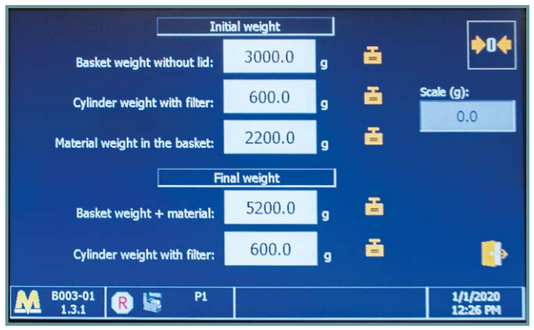
The solvent is recovered by condensation and can be re-used for further extractions. Each component is deigned and chosen to obtain the most accurate result.

PRECISE WEIGHT AND RESULTS

AMA allows the operator to save the test weights in three different ways:

- Manually, using an external laboratory scale
- Automatically, by means of a 10 kg capacity integrated balance with 0.1g resolution
- Automatically, by means of an external balance connected to AMA

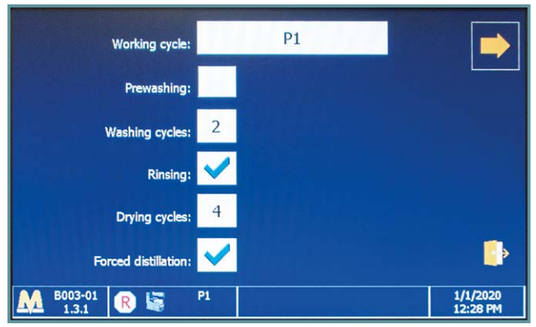
Users can use the best solution according to their needs.
Final result will be accurate and saved in the machine for further analysis.



SIMPLE TO PROGRAM

Different parameters can be set before starting the test and the operator can register up to 10 profiles to be used in function of the material tested. 100% procedure repeatibility and accuracy in results. Few steps and the test can run:

- Saving up to 10 test profiles
- Selecting the “PREWASH” mode
- Choosing the number of «WASHING» cycles
- Selecting the “RINSE” mode
- Choosing the number of «DRYING» cycles
- Choosing the timings of the various cycles



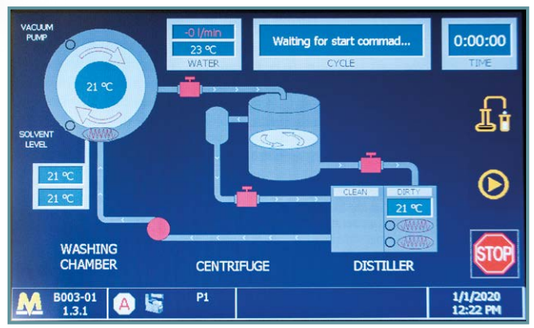
REAL-TIME MONITOR AND ACTION

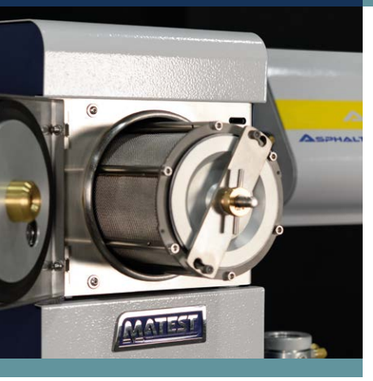
AMA has been developed from the user’s perspective and allow the operator to monitor all the test phases with the possibility of changing test parameters during the test, directly form the touch-screen display. Different important operations are permitted to make AMA unique:

- Increase / decrease of washing cycles during the washing phase
- Increase / decrease of drying cycles during drying phase
- Increase / decrease power of the resistances of the distiller

It is possible to check in real-time:

- Solvent level in distillation chamber
- Temperatures reached during test in washing chamber and distiller
- All drives during the test
- Water flow and temperature
- Cycle status and test time





SAFE

AMA is designed to avoid any risk for the operator and to limit environmental impact related to the solvents used.

It is **tried and proven** with the most common non-flammable solvents available in the market:

- Trichloethylene
- Tetrachlorethylene
- Methylene Chloride

Exposure to these solvents can have serious health effects on the human body and this is why Matest has developed an airtight system.

AIRTIGHT, CLOSED-LOOP SYSTEM

AMA is designed with solvent-resistant seals and valves to prevent fumes leakage or solvent spillage during the test.

Fumes are collected in a condensation chamber to avoid dispersion into the atmosphere.

In addition, a “Cleaning Cycle” at the end of each test is added to remove remained fumes from the chambers so material is restored under safe conditions for the operator.

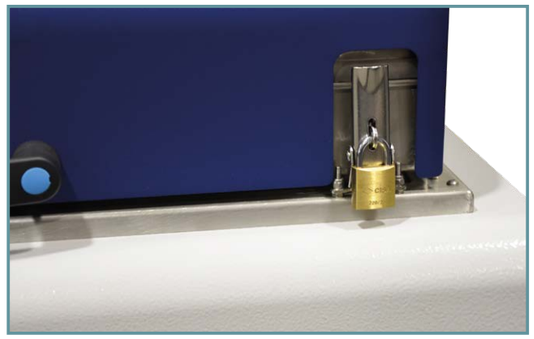
SAFETY FIRST OF ALL

AMA has been designed with an auto-diagnostic procedure when the machine is switched on.

In case of ALARM the machine can be reset just re-starting it.
All the valves are opened automatically to allow the operator to open the machine in complete safety.

In addition, doors of washing chamber and centrifuge are equipped with electromagnetic locks to avoid opening during the test or in case of alarm.

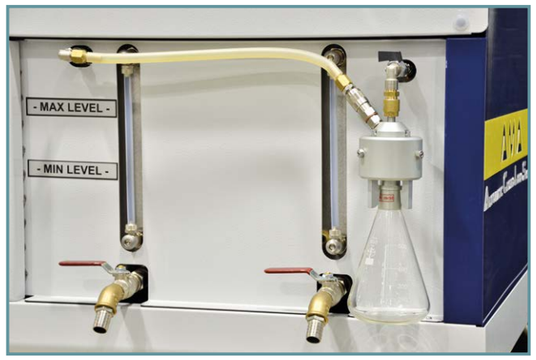
The distiller has a safety lock to prevent it from accidentally opening not only during the test.



NO CONTACT WITH SOLVENT

AMA is entirely designed to prevent contact with solvent. Different operations can be done directly from the control unit or adding some accessories:

- Distiller can run independently also before and after the test, using the distiller icon, to always have the right quantity of solvent before the test.
- Circulating pump can be used to spray solvent over resistances simply using a touch-screen button. It helps in cleaning the distiller without opening it.
- The operator can load the solvent in the distiller simply using a foot pump.
- It is possible to directly connect a rotary evaporator flask in order to collect bitumen and solvent for further analysis.



WE CARE ABOUT THE ENVIRONMENT

AMA takes care of the environment and tries to reduce to a minimum solvent consumption and dispersion in different ways:

- Solvent can be used many times thanks to a well designed distillation chamber. All the solvent can be distilled quickly to be ready for next test.
- Complete condensation of fumes to lose a minimum quantity of solvent at each test, only few ml per extraction.
- Enabling the option of “FORCED DISTILLATION” we can reduce to a quantity of 500 ml the dirty solvent collected in the distiller that can be removed or used for further distillation with rotary evaporator.

AMA is designed also to optimize energy consumption and water dispersion:

- Power of resistances can be reduced easily via touch-screen display to optimize distillation speed and save energy when distillation is finished before the end of the test.
- The machine can work with the use of a chiller to keep the water cool and optimize the extraction speed or connected at a standard water source in the laboratory. In the second case, to prevent excessive water consumption, the operator can easily set the machine to close the water valve when the test is not running.

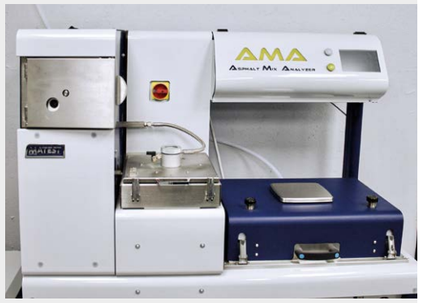
ASPHALT MIX ANALYZER AROUND THE WORLD

GEORGIA

ITALY

NETHERLANDS

ROMANIA



UNITED STATES

BUYER'S GUIDE

AMA is easy to order in just a few steps:

1. **MACHINE CODE**
   B003 – ASPHALT MIX ANALYZER
   One code covers all models. Easy to remember.

2. **OPERATION MODE**
   Choose the right model according to the solvent used:
   B003-01 Tetrachloroethylene Operation Mode
   B003-02 Trichloroethylene Operation Mode
   B003-21 Methylen Chloride Operation Mode

3. **NEEDED ACCESSORIES**
   The configuration needs few accessories to make the machine work:
   B003-06 Closing lid for washing drums (compatible with all meshes)
   B003-07 Centrifuge cup, Ø120 mm
   B008-11 Lining paper for centrifuge cup, pack of 100

B003-03

B003-07

B003-06

B008-11

4. **SELECT THE RIGHT MESH**
   Mesh opening of the washing drum is chosen according to size of filler to be analyzed:
   B003-03 Washing drum, mesh 0.063 mm
   B003-04 Washing drum, mesh 0.075 mm
   B003-05 Washing drum, mesh 0.090 mm

5. OPTIONAL ACCESSORIES:
   B003-13N Worktop balance 10 kg
   B003-14 Solvent stabilizator, for recycled tetrachloroethylene
   B003-15 Solvent pumping device for safe solvent filling
   B003-16 Water cooling system, high end
   B003-17 Device for the cup extraction
   B003-18 Quick-coupling for the evaporator flask
   B003-19 Water cooling system
   B003-20 External balance 15 kg

HOW TO DETERMINE THE BITUMEN CONTENT WITH SOLVENT EXTRACTION

Discover the complete process of determining bitumen content in asphalt mixtures using the solvent extraction method, all demonstrated with our powerful Asphalt Mix Analyzer. This tutorial guides you through each step from sample preparation to final results analysis ensuring full compliance with EN 12697-1 and ASTM D8159 standards.

Scan the code and watch the tutorial

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