

Anoxomat

Mark II



*Cultivation of anaerobic-,
micro-aerophilic-, and
capnophilic bacteria*



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About Mart® Microbiology b.v and the Anoxomat

Mart® Microbiology is a Dutch company, located in the town of Lichtenvoorde in the east of the Netherlands.



Set up in 1982 as a two-man operation for the development of general automation equipment, it has now grown into a well-known company in the field of microbiology.

In 1984 a major breakthrough was achieved with the launch of 'Anoxomat™'. Developed in co-operation with a well-known and highly respected Dutch microbiologist, this system is produced and commercialised world-wide by Mart® Microbiology.

Today Mart® Microbiology has become a household name in laboratories engaged in microbiological research. Microbiologists all over the world are familiar with the Anoxomat™ and recognize its considerable advantages. Since its initial development, the system has been constantly refined and we are already marketing the fourth generation.



Field of application

The cultivation of micro-organisms in an oxygen-depleted atmosphere typically takes place using anaerobic jars, an anaerobic glove cabinet or a CO₂ incubator.

These conventional methods are marred by many disadvantages, including late discovery of faulty jars or gas packs, slow anaerobiosis and chemical waste.

The massive space-occupying chambers (anaerobic cabinets or CO₂ incubators) with fixed environments consume huge quantities of gas (requiring correspondingly large gas cylinders to keep them running). Servicing is costly and inconvenient.

Added to this, they are incapable of cultivating micro-aerophilic and anaerobic organisms at the same time, thus denying laboratories vital flexibility.

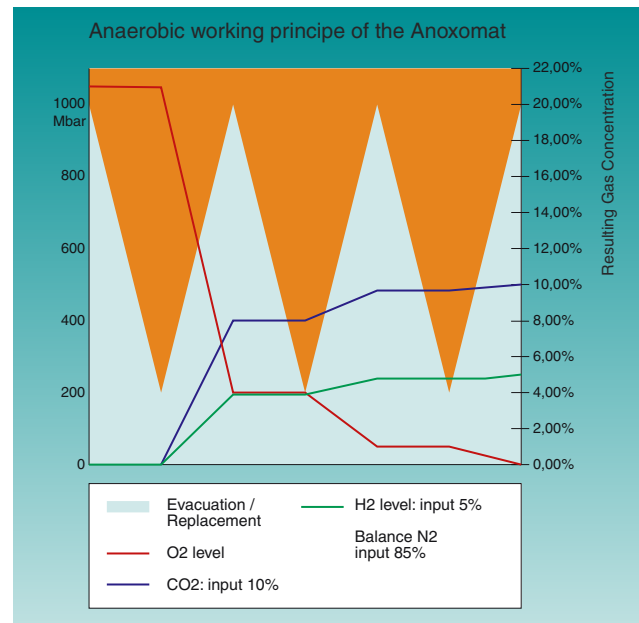
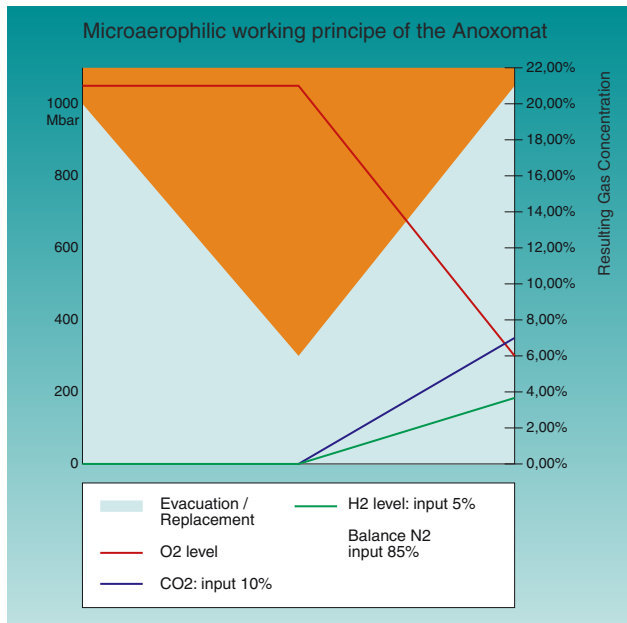
The Anoxomat™ has been designed to cope with these shortcomings.

Method and System Information

The evacuation and replacement method of MacIntosh & Fildes is said to be the most efficient way to create anaerobic or micro-aerophilic conditions, eliminating the disadvantages of conventional methods. Mart® Microbiology B.V. has perfected this method in the **ANOXOMAT™** system.

The Anoxomat evacuates a portion of the jar contents, and refills the jar with an anaerobic gas mixture. During this procedure the Oxygen concentration in the air is rarefied.

In case of an anaerobic recipe, this procedure is repeated 3 times, after which the Oxygen concentration is rarefied to 0.16%. A small catalyst removes this very small percentage.



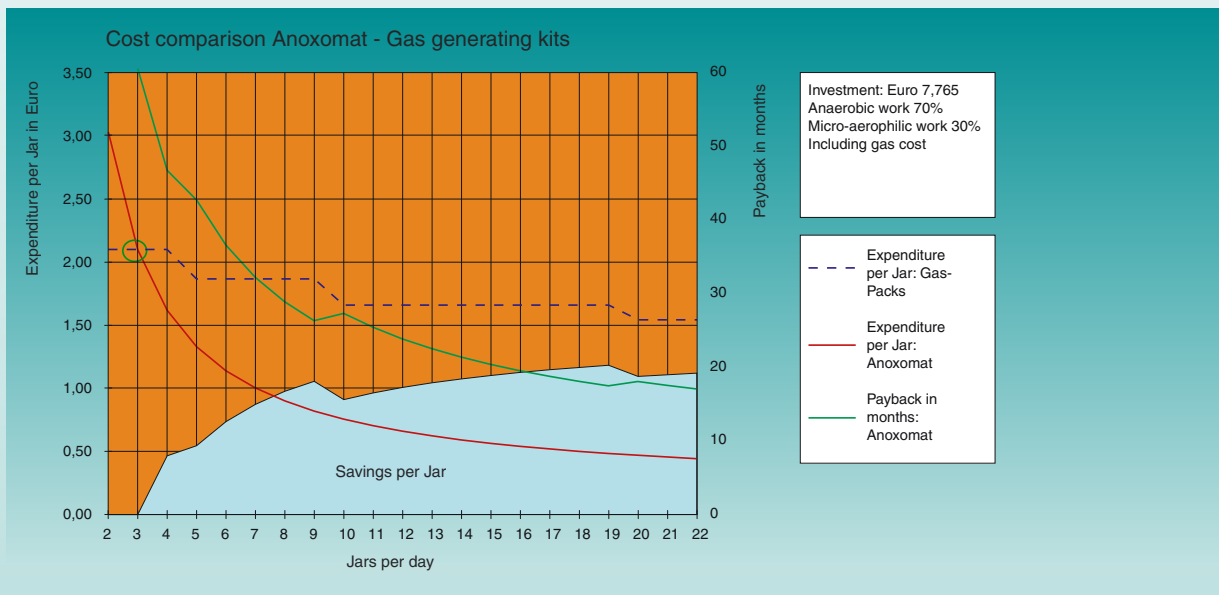
Since 1984, more than 600 Anoxomat™ systems have been installed in clinical (hospitals, universities, public health laboratories) and industrial (food and beverage, water supply, pharmaceutical) laboratories world-wide, with users universally satisfied. Well-known scientists such as Dr. S.M. Finegold (USA), Dr. J.S. Brazier and Dr. S.A. Smith (both UK), and Prof. Dr. W. Back, and Dr. W. Kletman (both Germany) have tested and recommended the system as better or at least equal to comparable methods. Comparative tests between the Anoxomat system and other methods have been carried out at internationally recognized institutes, with the Anoxomat often producing superior results.

Features of the Anoxomat™ system

The Anoxomat incorporates unique features, which improve the output of the laboratory, simplifies handling for laboratory personell and makes daily routines much more efficient, predicable and secure.

- Fully automatic
 - Processes the jar while you continue to work
 - Eliminates human errors
- Reliable
 - Reproducible, controlled conditions
 - Eliminates guesswork
- Fast micro-aerophilic and anaerobic conditions
 - Improves recovery of oxygen-sensitive organisms
- Quality assurance BEFORE incubation
 - Double Jar-leak test
 - Gas-input test
 - Catalyst activity test
- Flexible
 - Optimal conditions can be created for each culture, in each separate jar
 - The capacity can easily be extended by simply acquiring more jars

- ▶ Very simple operation
 - Connect the jar and start
- ▶ Memory
 - For user-defined O₂, CO₂ and H₂ concentrations
- ▶ Eliminates the use of disposables
 - No chemical waste
- ▶ Dry conditions
 - Clean handling
 - No cross-contamination
- ▶ Low gas consumption
 - Saves cost and handling
 - No need for massive cylinders in the laboratory
- ▶ Uses Mart® anaerobic jars
 - Different jar-sizes
 - Corresponding dish holders are available
 - Can use modified jars of most brands
- ▶ Convenient
 - Space saving due to a small foot-print and the table-top design
- ▶ Cost efficient
 - Low maintenance
 - View comparison below



The Anoxomat™ MARK II



Responding to changing laboratory needs and user feedback, Mart® Microbiology decided to redesign the Anoxomat™ system, combining accumulated experience and modern techniques.

This has now resulted in the **Anoxomat™ MARK II system.**

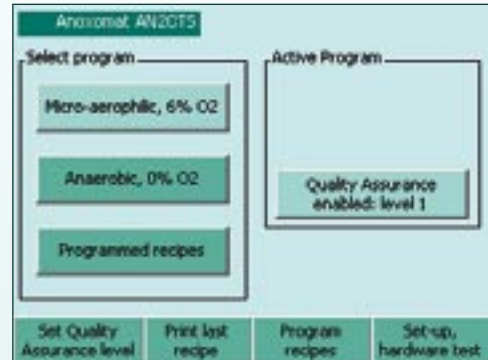
Additional features of the Anoxomat™ MARK II.

► We have obtained significantly **enhanced process precision.**

The resulting gas mixture in the jar(s) now stays well within 0.5 percentage points of the desired value.

This high precision combined with the well-known reproducibility of the conditions gives microbiologists a strong tool to draw accurate conclusions from repeated findings.

- To achieve **increased simplicity** of operation, especially when non-standard conditions are desired, Mart® Microbiology has incorporated a touch screen display, allowing the user to simply enter the desired percentages of oxygen and other gases, and save these “recipes” for future reference.



► **Accreditation**

Many laboratories struggle to fulfil current accreditation standards. The Anoxomat™ facilitates compliance by enabling the laboratory to control and retrace the sample processing history.

- To determine when and how the samples were processed, an optional **thermal printer** can be attached to the Anoxomat™. The following information is printed:
 - Date/time
 - Recipe performed
 - Quality assurance level
 - Quality assurance, result per jar and per gas supply
 - Final composition of gasses in approved jars
- To determine where and who processed the samples with the Anoxomat™, an optional **registration input screen** can be added.
 - Identification of laboratory, department, laboratory technician, job and jars
 - Contents of jars
 - Use of visual indicator



The registered information is stated on the printout.

- The vacuum pump has now been incorporated in the housing of the machine to achieve **a compact, easy to handle system.**

The footprint of the system is still surprisingly small:

- Width 32 cm
- Depth 52 cm
- Biggest height 28 cm; inclining front to back

► Instead of producing different models, we have chosen to offer only one model with options, to give the customer all freedom of choice.

The basic system is equipped with **one gas supply and one jar connection**. It has no programming facility.

- More gas supplies and jar connections (total maximum 5 connections)
 - **3 Extra jar connections** (up to 4 jars can be processed at the same time)
 - **2 Extra gas connections** (up to 3 gas supplies can be processed)
- To make life easy, Mart® Microbiology can pre-program the recipes the customer desires.
 - Preprogrammed recipe
 - for oxygen level and evacuation level
 - for oxygen level, gas mixture and evacuation level
- For customers who experiment regularly with Oxygen, Carbon Dioxide and Hydrogen concentration-mixtures it is possible to create and recall recipes freely.
 - **User programming function** (free user programming of oxygen level, gas mixture and evacuation level)

Accessories

Jars

Oxygen-sensitive micro-organisms are often cultivated in anaerobic jars.

Unfortunately, many brands on the market are badly constructed and often not airtight. This regularly results in failures that are not detected until AFTER the incubation.

MART® Microbiology BV, designed their jars to cope with these weaknesses.

Due to the excellent basic material, the overall solidity and the strong jar-lid-clamp construction, the MART® jar satisfies the highest mechanical and microbiological standards and is guaranteed to have a longer life than competing brands.

Material

Polymethylmethacrylate, PMMA for short, has an extremely smooth surface and is shock and impact resistant. The maximum temperature it can withstand lies at about 80°C.

Construction

Jar and lid are both transparent, which is unique for anaerobic jars.

A furrow in the lid falls over a brim on the jar, thus centring the lid perfectly and avoiding any undue leakage. The sealing between lid and jar consists of an excellent quality rubber O-ring.



The Clamp

The lid can be tightened on the jar, using the white-coated stainless steel clamp. The clamping wheel can be screwed down just finger-tight. This is enough to guarantee a perfect seal between lid, O-ring and jar. It ensures that the jar is hermetically sealed during over- and under-pressure and eliminates



any diffusion.

The quick (snap-shut) coupling

The jar features a coupling, enabling quick connection to the Anoxomat™ System in one swift move. The jar can be easily disconnected after processing. The coupling guarantees absolute closure during incubation.

The Petri dish holders

One or more corresponding Petri dish holders can be supplied with each jar for almost every size of Petri dish and even micro-titter plates. The holders, made of autoclavable stainless steel, permit much easier dish handling.

Available jars and Petri dish holders

| Jar | Contents | Petri dish holder |
|--------|--|-------------------|
| AJ9022 | 1 stack of 6 Petri dishes ø 9-10 cm | PH 1060 |
| AJ9023 | 1 stack of 12 Petri dishes ø 9-10 cm | PH 1040 |
| AJ9025 | 3 stacks of 12 Petri dishes ø 6 cm | PH 1080 |
| | 1 stack of Micro-titter plates 13 x 9 cm | PH 1090 |
| | 1 stack of 10 Petri dishes ø 14.5 cm | PH 1070 |
| AJ9028 | 4 stacks of 12 Petri dishes ø 9 cm | Non |
| | 3 stacks of 12 Petri dishes ø 10 cm | PH 1050 |



Catalyst

Available catalysts

| Catalyst type | For use in Jar | Quantity needed |
|---------------|----------------|-----------------|
| CA0000 | AJ9022, AJ9023 | 1 |
| | AJ9025 | 2 |
| | AJ9028 | 3 |
| CA0001 | AJ9025, AJ9028 | 1 |

After processing the jars with the Anoxomat™ using the anaerobic recipe, a mere 0.16% of oxygen remains in the jar. A small catalyst is needed to obtain and retain absolute anaerobiosis. This catalyst consists of palladium

coated aluminium pellets in a stainless steel gauge sachet. The catalyst can be used numerous times by reactivation in a hot-air oven. It can be easily mounted under the jar lid with the catalyst-clip.

Halamid Jar cleaner and disinfectant

Halamid is based on latent chlorine and oxygen. It is officially registered in conformity with the Dutch Biocide Regulation for use in the food and healthcare sectors.

- Effective against bacteria, fungi and viruses.
- Very high percentage of stable and active substance.
- Releases exactly the right amount of chlorine needed for an optimal disinfecting result. A Halamid-solution therefore retains its active properties even over very long periods.
- Excellent storage stability.
- Not aggressive towards metals and other materials (such as rubber, plastics, wood, etc.)
- Does not attach to surfaces and is therefore easy to rinse.
- Dissolves easily in cold water (maximum concentration is 10% at a temperature of 15°C).

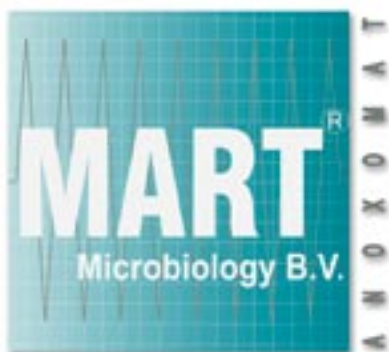
In most cases 0.5 to 1.0% will be sufficient.





Please find the Anoxomat distributor in your country on: www.anoxomat.com › Distributor Network

Your local Anoxomat™ partner



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