



30 YEARS OF EXPERIENCE  
IN TRACEABLE SAMPLE  
STORAGE

CERTIFIED CLASS 7  
CLEAN ROOM INJECTION  
MOLDING AND ASSEMBLY

PRODUCTION IN THE  
NETHERLANDS AND THE  
UNITED STATES

***NEXT GENERATION***  
**ULTRA-LOW TEMPERATURE  
TUBE STORAGE RACK RANGE**

*Available in Canada from...*

MJS  
**BioLynx**  
INC.

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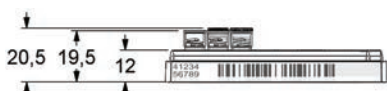
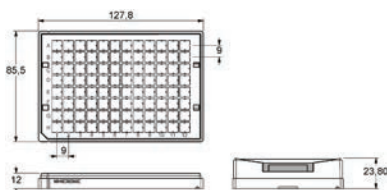
## A STATE OF THE ART RACK RANGE WITH UNMATCHED FEATURES

Drawing upon over 30 years of experience in manufacturing and supplying traceable sample storage solutions to research centers and laboratory facilities, Micronic has developed a *Next Generation Ultra-Low Temperature Tube Storage Rack Range*. The Micronic Ultra-Low Temperature (ULT) Racks do not simply have a nicer design - they are better in every way. The racks have many unique features including its extremely strong design for cryogenic storage, a novel “icebreaker” cover lock mechanism, cover prints indicating rack and tube type, rack orientation marks and a highly transparent cover which enables easy visual checking of the enclosed samples.

Precision manufactured in a certified Class 7 clean room production facility, the Micronic ULT Racks are based on the Society for Laboratory Automation and Screening (ANSI/SLAS) standards for storage racks and accommodate 96, 48 or 24 tubes. Absolute traceability and reproducibility on the racks is ensured through novel laser-etched alphanumeric visual location aids on top of the racks and a unique laser-etched 1D barcode on the side of the racks. The open bottom design of the storage racks facilitate quick defrosting of samples. The racks may be autoclaved several times providing considerable cost savings over consumable sample storage products.

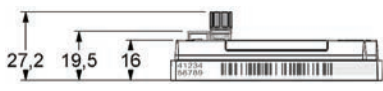
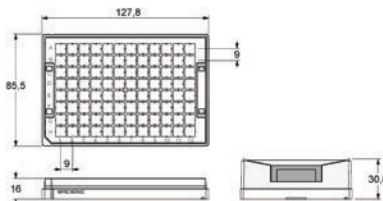
### Micronic 96-1 Rack

For 0.50ml tubes with TPE Push Caps/  
Low Profile Screw Caps



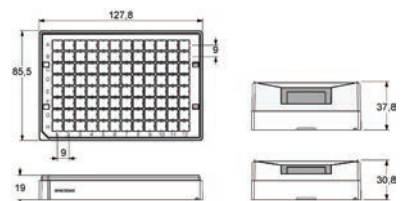
### Micronic 96-Q1 Rack

For 0.50ml tubes with  
Screw Caps



### Micronic 96-2 Rack

For 0.75ml tubes with TPE Push Caps/  
Low Profile Screw Caps or Screw Caps



# NEXT GENERATION

## ULTRA-LOW TEMPERATURE TUBE STORAGE RACK RANGE IN 96-WELL, 48-WELL AND 24-WELL FORMAT

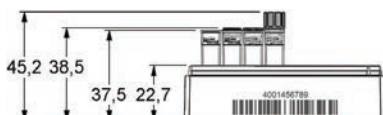
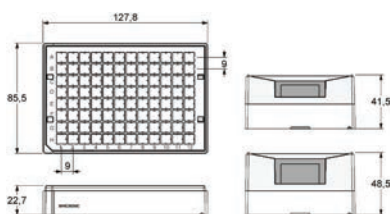
### THE USE OF THE MOST ADVANCED MATERIALS - A RESULT OF EXTENSIVE RESEARCH

One of the most important properties tube storage racks need to have is their resistance against extreme conditions. Micronic conducted research on all kinds of materials and rack designs in order to come to a perfect match for use in ultra-low temperatures. As a result of extensive testing, the Micronic ULT Racks are manufactured from virgin Polycarbonate. Racks made from this material have excellent properties for low temperature conditions which make them ideal for long term use in automated cryogenic storage facilities. The material used to manufacture the racks is selected on quality and the highest purity levels. The racks have an extremely strong design which minimizes deformation due to temperature changes.

The Micronic ULT Racks, as well as its tubes and caps, are manufactured and assembled under US Federal Standard 209E Class 7 clean room conditions. Micronic manufactured products comply with the highest injection molding standards and are free of any detectable RNase or DNase contamination. Micronic is also able to limit the endotoxin (pyrogen) level of produced and packaged articles to an acceptable minimum (< 0.01 EU/ml) by maintaining the highest possible hygiene level during the production processes.

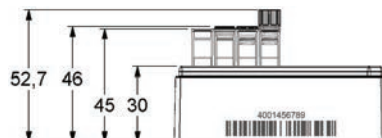
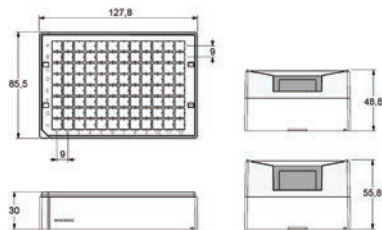
#### Micronic 96-3 Rack

For 1.10ml tubes with TPE Push Caps/  
Low Profile Screw Caps or Screw Caps



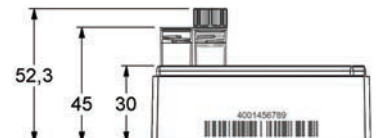
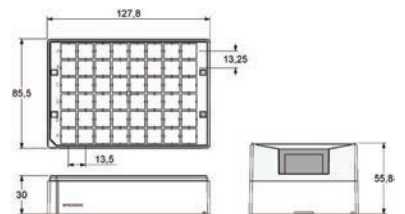
#### Micronic 96-4 Rack

For 1.40ml tubes with TPE Push Caps/  
Low Profile Screw Caps or Screw Caps



#### Micronic 48-4 Rack

For 4.00ml tubes with  
Screw Caps







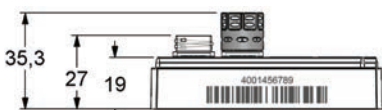
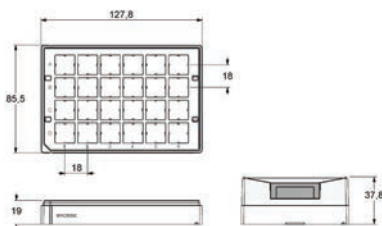
## DESIGNED IN COOPERATION WITH AUTOMATION COMPANIES

There is a trend among biorepositories and other laboratory facilities towards laboratory automation in order to increase and maintain sample integrity. This means that tube storage racks need to be designed in such a way that they are compatible with automated storage and handling systems. The Micronic ULT Racks therefore have an automation compatible American National Standards Institute/ Society for Laboratory Automation and Screening (ANSI/SLAS) dimensional footprint.

Next to the standard ANSI/SLAS footprint, the ULT Racks are provided with more features ideal for automation. These features include: an outstanding Twist-Lock design which prevents tubes from turning during screw (de)capping, easy lead-in tube and cover placement, closed side walls with minimal notches for perfect rack orientation, a unique automation-friendly cover lock system with which closing is achieved by simply moving the locker at each end of the cover downwards, and the 1D rack barcode is inseparable with the rack for absolute tracking and tracing of the samples. The Micronic ULT Racks are already tested and in operation at low temperature automated storage systems.

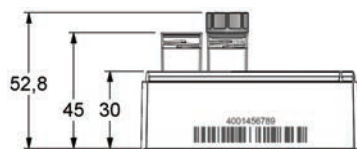
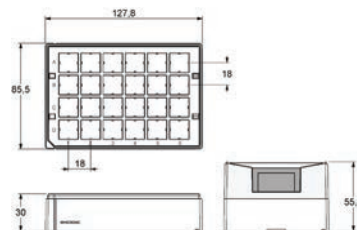
### Micronic 24-2 Rack

For 3.00ml tubes with Screw Caps



### Micronic 24-4 Rack

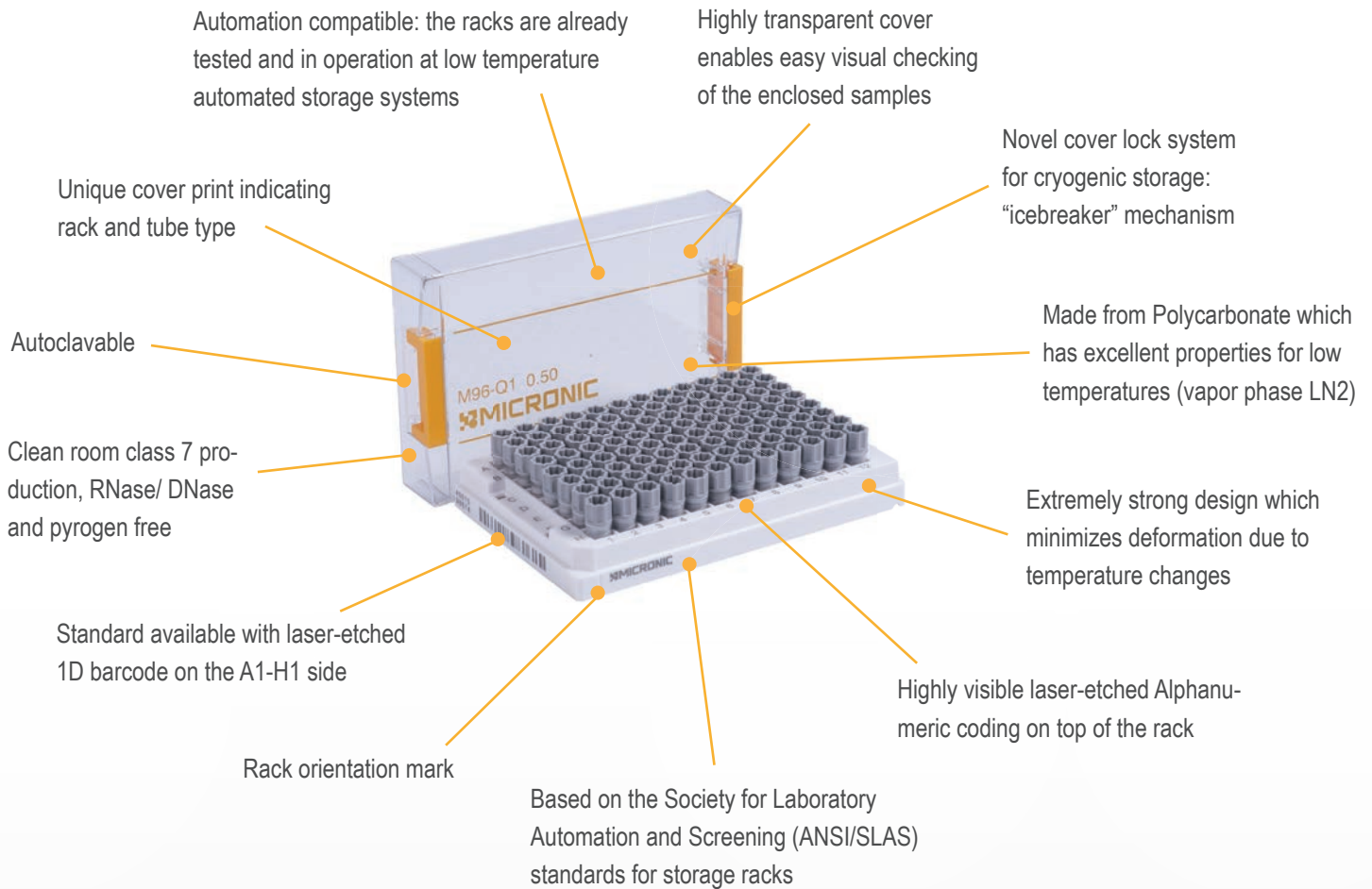
For 6.00ml tubes with Screw Caps



### DID YOU KNOW...

Barcode quality is integral to the success of an automated system. In a process where quality barcodes accurately store and communicate data - from code to reader to central system - minimal manual intervention is required. Thanks to quality barcodes, the unique benefits of an automated system are realized: lower costs, higher productivity and fewer errors. The laser etched 1D rack barcode which is standard available on Micronic racks, falls within the highest quality classifications. The classification is determined by the least high result for each parameter (e.g. decodability, defects, minimum edge contrast, minimum reflection and modulation) which means that the barcode is always as good as its lowest scoring parameter. When a barcode falls within the highest classifications, it has a consistent level of quality for readability in an automated process.

## SUPERIOR RACK FEATURES



## OPTIONAL FEATURES / SERVICES



### CUSTOM 1D RACK BARCODE

Micronic offers the service to supply unique laser-etched 1D barcodes in customized formats on any side of the rack. The standard barcoded racks of Micronic are provided with a unique laser-etched barcode on the A1-H1 side of the rack.

**STERILE**

### STERILIZATION BY GAMMA IRRADIATION

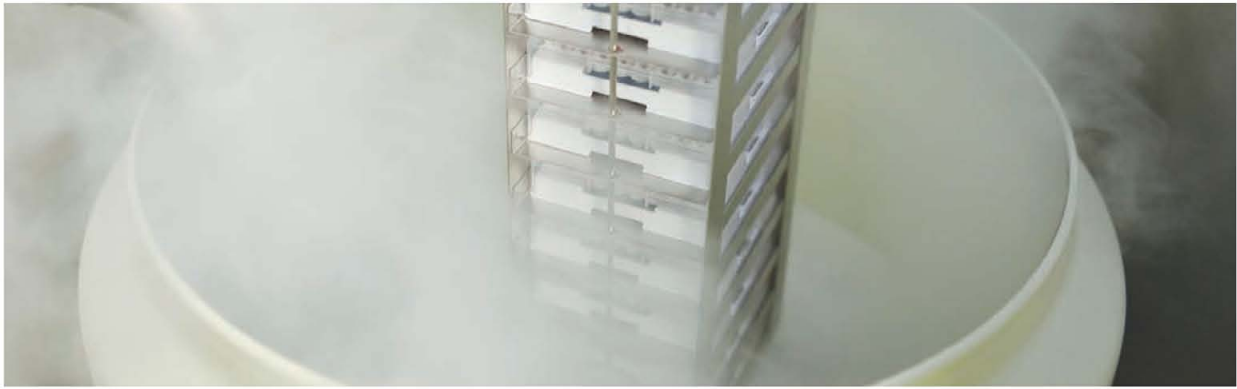
Most of the Micronic products are sterilized by gamma irradiation (15.0 kGy). Sterilization by gamma irradiation can ensure a SAL of 10<sup>-6</sup>: a one millionth probability of microbial survival. Irradiation itself cannot guarantee that the product is free from any detectable RNases, DNases or pyrogens. Class 7 clean room production is therefore an essential requirement.



### STERILIZATION BY ETO TREATMENT

Using a novel Ethylene Oxide Treatment process - Micronic's consumable products are independently certified to be absolutely DNA-free and therefore provide the perfect medium for long-term, high integrity storage of forensic samples. Micronic is offering the DNA-free products in a special Tyvek packaging.

## CRYOGENIC SAMPLE STORAGE



Storing samples at low temperatures is associated with extended viability of the preserved samples. While many samples are stored in mechanical freezers at  $-80^{\circ}\text{C}$ , it is important to note that at this temperature metabolic activity has not ceased, it has only slowed down. By reducing sample temperatures to below the glass transition phase of water ( $-132^{\circ}\text{C}$ ), all metabolic activity comes to a halt. Sample storage below this temperature - in vapor phase LN2 - therefore assures a safe form of preservation.

Testing shows that the Micronic ULT Racks can be used in cryogenic temperatures until vapor phase LN2. Vapor phase LN2 temperatures range between  $-150^{\circ}\text{C}$  and  $-196^{\circ}\text{C}$ , depending on the location and the distance away from the liquid nitrogen vessel.

Micronic does not recommend to store samples in liquid phase nitrogen, as there are several risks associated with storing samples in these kind of storage systems:

- Storage in LN2 includes the risk of the tubes being flooded by LN2 when the storage vessel is filled - LN2 may seep inside the tube when not correctly capped. LN2 trapped in a cavity expands rapidly when the tube is retrieved into room temperature, which may cause a significant explosion risk. No manufacturer can guarantee that LN2 will never penetrate into any tube during storage.
- Research shows that laboratory staff should be aware of potential cross-contamination from e.g. viruses that retain infectivity after suspension in LN2.

## COMPATIBILITY



 **MICRONIC**  
INNOVATION IN SAMPLE STORAGE

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Please consult your local reseller for more details. [PD804301]

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