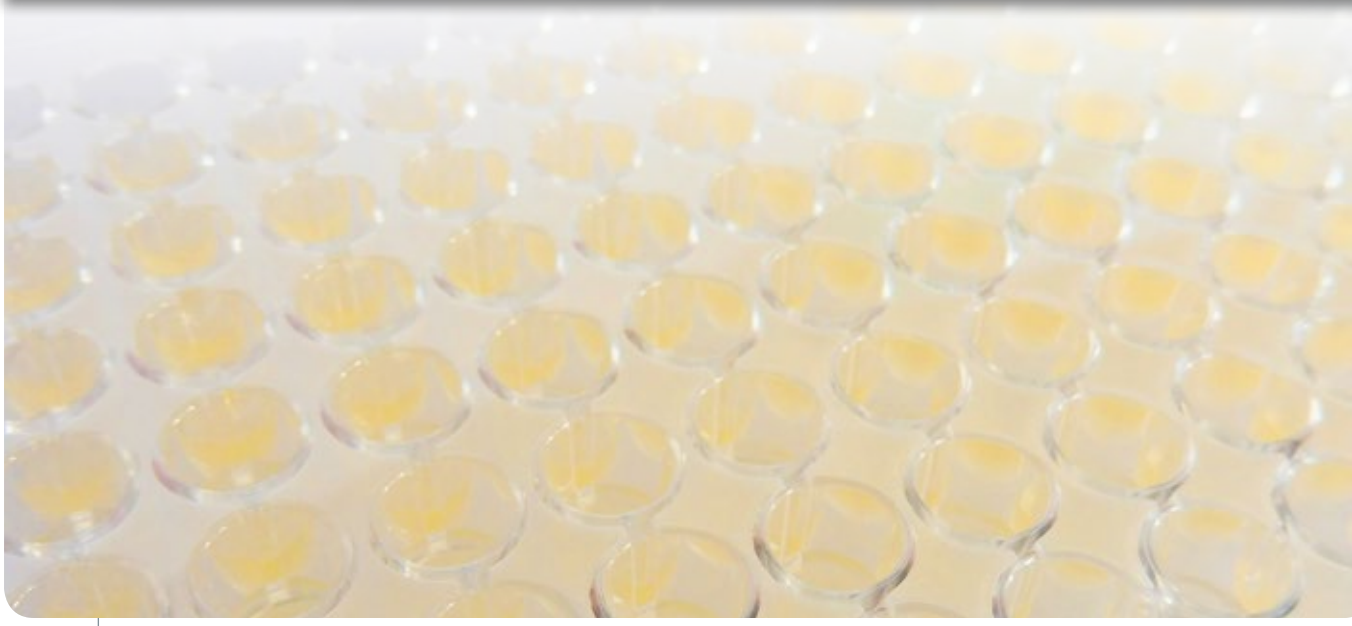
IVD Edition



MICRONAUT

MIC-Strip Vancomycin/Teicoplanin

What can it be used for?

The MICRONAUT MIC Strip Vancomycin/Teicoplanin enables antimicrobial susceptibility testing against the glycopeptide antibiotics vancomycin and teicoplanin by using the broth microdilution (BMD) method as advised by EUCAST for *Enterococcus faecalis* and *Enterococcus faecium* positive for vanA / vanB [1].

Antimicrobial susceptibility testing of vancomycin and teicoplanin has been fraught with difficulties until now. EUCAST recently issued recommendations confirming that BMD is currently the only valid method for MIC determination of vancomycin.

Gradient test methods for MIC determination of vancomycin are currently not recommended because of false susceptibility results for vanB-expressing *Enterococcus* spp. isolates due to underestimated MIC values.

Vancomycin concentration range
0.25 to 4 mg/L

Teicoplanin concentration range
0.25 to 8 mg/L

Manufactured by MERLIN

BMD-MIC

Innovation with Integrity

Features and benefits

- Phenotypic detection of glycopeptide resistance (e.g. vanA, vanB)
- Standardized MIC determination of vancomycin and teicoplanin in routine laboratory diagnostics according to EUCAST recommendations
- The strip format permits economic use of the AST, adapted to the individual laboratory diagnostic requirements
- Easy handling combined with standard laboratory equipment, for high quality MIC results of vancomycin and teicoplanin
- No special expertise required, easy visual evaluation

Procedure

- Prepare a 0.5 McFarland bacterial suspension in NaCl
- Transfer an aliquot into Mueller-Hinton II broth (CAMHB)
- Inoculate the appropriate number of MIC-Strips
- Incubate for 18-22 hours at 35-37°C
- Read the results visually

Shelf life and storage

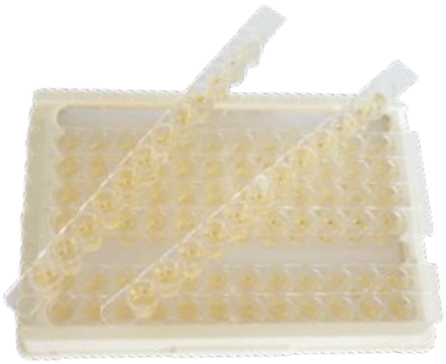
- Shelf life: 24 months from date of production (unopened), expires 8 weeks after opening
- Storage: at room temperature (15-25°C)

International ISO standard method

- MICRONAUT is a broth microdilution system using the international reference methodology (ISO 20776-1). MIC levels are based on EUCAST guidelines where applicable.

Reference

[1] EUCAST guidelines for detection of resistance mechanisms and specific resistances of clinical and/or epidemiological importance Version 2.0 July 2017.



Vancomycin (VAN) and teicoplanin (TPL) concentrations (mg/L)

1	2	3	4	5	6	7	8	9	10	11	12
GC	VAN	VAN	VAN	VAN	VAN	TPL	TPL	TPL	TPL	TPL	TPL
	0.25	0.5	1	2	4	0.25	0.5	1	2	4	8

Order Information

MICRONAUT MIC-Strip Vancomycin/Teicoplanin
5 plates, 8 strips per plate (40 tests per box) / Part No EM-022-040

Mueller-Hinton Broth, cation adjusted
1 tube per test, 20 tubes per box / Part No E2-331-020
1 tube per test, 100 tubes per box / Part No E2-331-100

Please contact your local representative for availability in your country

MERLIN Diagnostika GmbH

Kleinstraße 14
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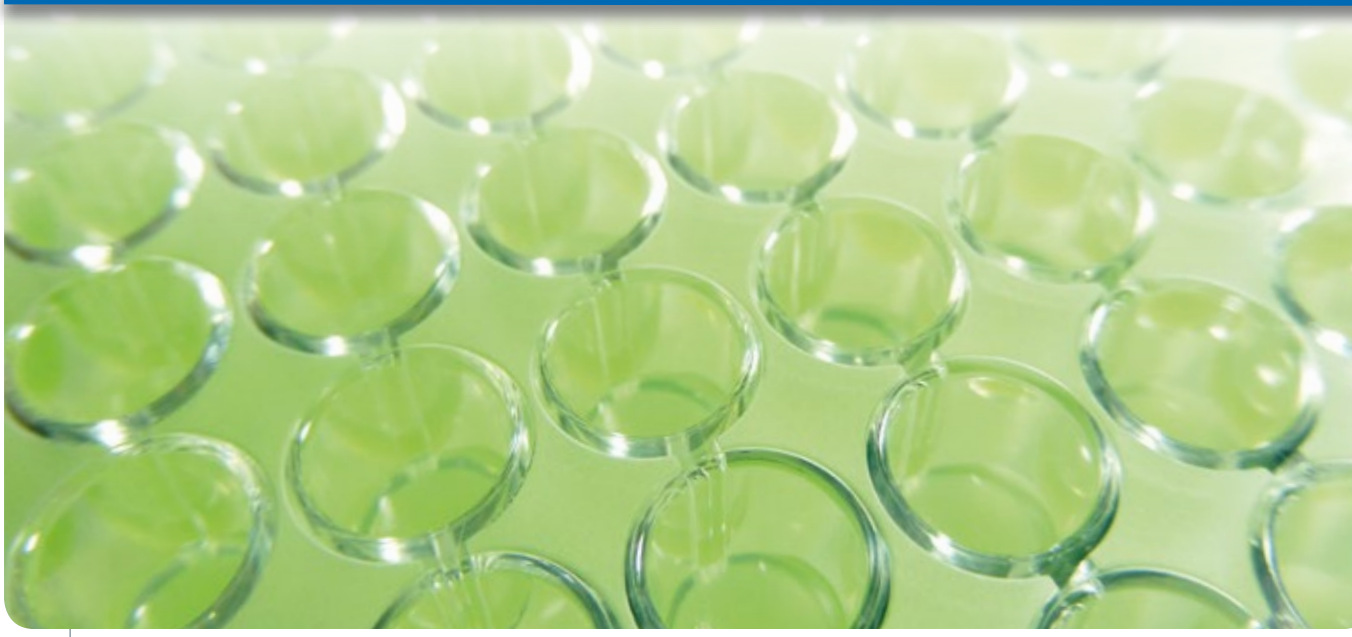

MICRONAUT

MIC-Strip Colistin

What can it be used for?

The MICRONAUT MIC-Strip Colistin enables antimicrobial susceptibility testing against the back-up antibiotic colistin by using the broth microdilution (BMD) method, as advised by EUCAST, for *Enterobacteriaceae*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii* group.

Antimicrobial susceptibility testing of colistin has been routinely fraught with difficulties until now. A joint EUCAST and CLSI subcommittee recently issued recommendations confirming that BMD is currently the only valid method for MIC determination of colistin. Gradient tests and disk diffusion methods are not recommended because of the poor diffusion of the large colistin molecule that could lead to an underestimated MIC value[1].

Colistin concentration range
0.0625 to 64 mg/L

Manufactured by MERLIN

BMD-MIC

Innovation with Integrity

Features and benefits

- Phenotypic detection of colistin resistance (e.g. MCR-1)
- Standardized MIC determination of colistin in routine laboratory diagnostics according to EUCAST recommendations
- The strip format permits economic use of the AST adapted to the individual laboratory diagnostic requirements
- Easy handling combined with standard laboratory equipment, for high quality MIC colistin results
- No special expertise required, easy visual evaluation

Procedure

- Prepare a 0.5 McFarland bacterial suspension in NaCl
- Transfer an aliquot into Mueller-Hinton II broth (CAMHB)
- Inoculate the appropriate number of MIC-Strips
- Incubate for 18-22 hours at 35-37°C
- Read the results visually

Shelf life and storage

- Shelf life: 24 months from date of production (unopened), expires 8 weeks after opening
- Storage: at room temperature (15-25°C)

International ISO standard method

- MICRONAUT is a broth microdilution system using the international reference methodology (ISO 20776-1). MIC levels are based on EUCAST guidelines where applicable.

Reference:

[1] Antimicrobial susceptibility testing of colistin – evaluation of seven commercial MIC products against standard broth microdilution for *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and *Acinetobacter spp.* Matuschek E, Åhman J, Webster C, Kahlmeter G, CMI (2018), 24(8):865-870

Colistin (COL) concentration (mg/L)

1	2	3	4	5	6	7	8	9	10	11	12
GC	COL	COL	COL	COL	COL	COL	COL	COL	COL	COL	COL
	0.0625	0.125	0.25	0.5	1	2	4	8	16	32	64

Order Information

MICRONAUT MIC-Strip Colistin
5 plates, 8 strips per plate (40 tests per box) / Part No EM-006-040

Mueller-Hinton Broth, cation adjusted
1 tube per test, 20 tubes per box / Part No E2-331-020
1 tube per test, 100 tubes per box / Part No E2-331-100

CE IVD

Please contact your local representative for availability in your country

MERLIN Diagnostika GmbH

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IVD Edition

MICRONAUT

MIC-Strip Piperacillin-Tazobactam

What can it be used for?

The MICRONAUT MIC-Strip Piperacillin-Tazobactam enables antimicrobial susceptibility testing against the combination medication piperacillin-tazobactam by using the broth microdilution (BMD) method for *Enterobacteriaceae* and *Pseudomonas aeruginosa*.

Piperacillin-Tazobactam concentration range
0.125/4 to 128/4 mg/L

Manufactured by MERLIN

BMD-MIC

Innovation with Integrity

Features and benefits

- Phenotypic antimicrobial susceptibility testing against piperacillin-tazobactam
- Standardized MIC determination of piperacillin-tazobactam in routine laboratory diagnostics by broth microdilution procedure
- The strip format permits economic use of AST, adapted to the individual laboratory diagnostic requirements
- Easy handling combined with standard laboratory equipment, for high quality MIC results of piperacillin-tazobactam
- No special expertise required, easy visual evaluation

Shelf life and storage

- Shelf life: 24 months from date of production (unopened), expires 8 weeks after opening
- Storage: at room temperature (15-25°C)

International ISO standard method

- MICRONAUT is a broth microdilution system using the international reference methodology (ISO 20776-1). MIC levels are based on EUCAST guidelines where applicable.

Procedure

- Prepare a 0.5 McFarland bacterial suspension in NaCl
- Transfer an aliquot into Mueller-Hinton II broth (CAMHB)
- Inoculate the appropriate number of MIC-Strips
- Incubate for 18-22 hours at 35-37°C
- Read the results visually

Piperacillin-Tazobactam (PIT) concentrations (mg/L)

1	2	3	4	5	6	7	8	9	10	11	12
GC	PIT	PIT	PIT	PIT	PIT	PIT	PIT	PIT	PIT	PIT	PIT
	0.125/4	0.25/4	0.5/4	1/4	2/4	4/4	8/4	16/4	32/4	64/4	128/4

Order Information

MICRONAUT MIC-Strip Piperacillin-Tazobactam
5 plates, 8 strips per plate (40 tests per box) / Part No EM-024-040

Mueller-Hinton Broth, cation adjusted
1 tube per test, 20 tubes per box / Part No E2-331-020
1 tube per test, 100 tubes per box / Part No E2-331-100

CE IVD

Please contact your local representative for availability in your country

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MICRONAUT

DIAGNOSTICS WITH PASSION

Use the reference method and fill the gap of your fully automated system

MICRONAUT systems for the identification and susceptibility testing of bacteria and yeast

The testing principle of MICRONAUT identification systems (ID) is based on the phenotypical detection of the biochemical characteristics of microorganisms. The anti-microbial susceptibility test (AST) is based on phenotypical resistance detection by the growth of the microorganisms in the presence of the antibiotics / antifungal agents tested.

The microdilution method used here is a standardised one regarded worldwide as the recognised reference system for determining the minimum inhibitory concentration (MIC).

The substrates or antibiotics are present vacuum-dried in the microtitration plates. Thanks to a special vacuum drying procedure, these MICRONAUT plates can be stored at room temperature (15-25 °C).

Starting with a pure culture, the microorganisms are suspended in the corresponding MCN media and transferred to the MICRONAUT plates with an 8-channel pipette. Rehydration of the dried substances occurs by addition of the characterising bacteria or yeast suspension. After an incubation period of 18-24 hours the results can be photometrically measured or read visually.

As the central element in testing the MICRONAUT software combines device management, device communication and data analysis as well communication with the LIMS. The integrated expert system analyses the photometric test measurements and assumes the clinical validation. As an option, the software can be connected bi-directionally with the laboratory EDP.

MERLIN

MICRONAUT

MICRONAUT identification

The test principle of the MICRONAUT identification systems is based on phenotypic detection of the biochemical properties of microorganisms.

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/E2-880-400	**MICRONAUT-GNE**	4 tests/plate Identification of *Enterobacteriaceae* and other gram-negative bacteria.	18 - 24 hrs	photometrically	100 plates
M/E2-710-400	**MICRONAUT-IDS**	4 tests/plate Identification of the most common clinically relevant *Enterobacteriaceae*, Non-fermenter, staphylococci, entero-cocci and streptococci.	5 - 6 hrs	photometrically	100 plates + 2 l NaCl
M/E2-520-120	**MICRONAUT-NF**	3 tests/plate Identification of non fermenting, gram-negative and some glucose-fermenting bacteria.	24 hrs	photometrically	40 plates
M/E2-730-080	**MICRONAUT-RPO**	2 tests/plate Identification of staphylococci, strepto-cocci, corynebacteria, *Listeria*, bacilli and other gram-positive bacteria.	22 - 24 hrs	photometrically	40 plates + 1 l NaCl
M/E2-850-160	**MICRONAUT-STAPH**	4 tests/plate Identification of clinically relevant staphylococci.	6 hrs or 18 - 24 hrs	photometrically	40 plates + 1 l NaCl
M/E2-870-160	**MICRONAUT-STREP**	4 tests/plate Identification of clinically relevant streptococci and enterococci.	20 - 24 hrs	photometrically	40 plates + 1 l NaCl
M/E2-740-160	**MICRONAUT-Candida**	4 tests/plate Identification of clinically relevant yeasts.	24 hrs	photometrically	40 plates
M/E5-005-200	**MICRONAUT-UR**	2 tests/plate Identification and susceptibility testing for urological diagnostics.	18 - 24 hrs	visually or photometrically	100 plates
M/E5-006-100	**MICRONAUT-UR-KH**	1 test/plate Identification and susceptibility testing for urine diagnostics, inclusive MRSA and ESBL detection.	18 - 24 hrs	photometrically	100 plates

MICRONAUT antimicrobial susceptibility tests (AST)

The MICRONAUT AST plates are offered in individual customer defined configurations, if an agreed minimum order quantity is being purchased. The customer may choose his preferred standard like EUCAST, or CLSI and compose his own customised antibiogram from more than 200 antibiotics. All AST products listed below are available as standard products. We continuously revise the range of standard AST plates. So please contact us for details on the actual program.

Customer defined plates

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/E1-xxx-x00	**MICRONAUT-S individual**	1 test/2 tests/4 tests/plate AST as Breakpoint or MIC method with your choice of antibiotics (minimum order quantity has to be agreed).	18 - 24 hrs	visually or photometrically	100 plates
M/EB-xxx-x00	**MICRONAUT-SB individual**	1 test/2 tests/4 tests/plate AST as Breakpoint or MIC method with your choice of antibiotics (minimum order quantity has to be agreed).	18 - 24 hrs	visually or photometrically	100 plates

Standard plates for clinical laboratories

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/EB-352-400	**MICRONAUT-SB Standard Urine I (EUCAST)**	4 tests/plate AST as Breakpoint method for UTI relevant antibiotics, EUCAST standard.	18 - 24 hrs	visually or photometrically	100 plates
M/EB-380-200	**MICRONAUT-SB Varia (ambulant) (EUCAST)**	2 tests/plate AST as Breakpoint method for mainly ambulant relevant antibiotics, EUCAST standard.	18 - 24 hrs	visually or photometrically	100 plates

MICRONAUT

Standard plates for veterinary laboratories

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/E1-032-200	**MICRONAUT-S Mastitis**	2 tests/plate AST as MIC method for mastitis relevant antibiotics.	18 - 24 hrs	visually or photometrically	100 plates
M/E1-113-100	**MICRONAUT-S Großtiere**	1 test/plate AST as MIC method for antibiotics for therapy of large animals.	18 - 24 hrs	visually or photometrically	100 plates
M/E1-130-100	**MICRONAUT-S Kleintier**	1 test/plate AST as MIC method for antibiotics for therapy of small animals.	18 - 24 hrs	visually or photometrically	100 plates

Standard plates for antifungal susceptibility testing of yeasts

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/E1-824-160	**MICRONAUT-AM**	4 tests/plate AST as Breakpoint + MIC method for antifungal agents.	22 - 48 hrs	visually or photometrically	40 plates
M/E1-831-040	**MICRONAUT-AM Anti Fungal Agents MIC**	1 test/plate AST as MIC method for antifungal agents (EUCAST).	22 - 48 hrs	visually or photometrically	40 plates
M/E1-832-080	**MICRONAUT-AM EUCAST AFST**	2 tests/plate AST as MIC method for antifungal agents (EUCAST).	22 - 48 hrs	visually or photometrically	40 plates

NEW

MICRONAUT MIC Strips

Art. No.	Product	Description	Evaluation	Packing
M/EM-006-040	**MICRONAUT MIC Strip Colistin**	40 tests Susceptibility testing of bacteria by the broth microdilution method to determine the minimum inhibitory concentration (MIC). According to the EUCAST and CLSI recommendations of March 2016 and the study of November 2016.	visually	5 x 8 strips/ tests with 12 wells per strip
M/EM-022-040	**MICRONAUT MIC Strip Vancomycin/ Teicoplanin**	40 tests Broth microdilution method for detection of glycopeptide resistant bacteria by determination of the minimal inhibitory concentration (MIC) of Teicoplanin and Vancomycin.	visually	5 x 8 strips/ tests with 12 wells per strip

Special plates for clinical laboratories

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/E1-111-040	**MICRONAUT-S Beta Lactamase**	1 test/plate Phenotypic detection of ESBL (extended spectrum beta-lactamase), MBL (metallo-beta-lactamase), KPC (Klebsiella pneumoniae carbapenemase), AMP-C (amino-penicillin-deactivating cephalosporinase) and D-carbapenemases (OXA-48) for all relevant gram-negative bacteria in a single system.	18 - 24 hrs	visually or photometrically	40 plates
M/E1-055-040	**MICRONAUT-S MRSA / GP**	1 test/plate Detection of multidrug-resistant staphlococci (MRSA), enterococci (VRE) and pneumococci, including testing of novel antibiotics (e.g. daptomycin, ceftaroline).	18 - 24 hrs	visually or photometrically	40 plates
M/E1-114-040	**MICRONAUT-S MDR MRGN-Screening**	1 test/plate Susceptibility testing of multidrug-resistant gram-negative bacteria. Phenotypic detection of AMP-C cephalosporinase and type A-, B- and D-carbapenemases (new: ceftolozane/ tazobactam and ceftazidime/ avibactam).	18 - 24 hrs	visually or photometrically	40 plates
M/E1-085-040	**MICRONAUT-S Anaerobier MHK**	1 test/plate Susceptibility testing of treatment-relevant antimicrobial agents, such as tigecycline, moxifloxacin or ertapenem.	18 - 24 hrs	visually or photometrically	40 plates
M/E1-973-040	**MICRONAUT-S Campylobacter**	1 test/plate Determine resistances by measuring MIC for all relevant antimicrobial agents against *Campylobacter*.	18 - 24 hrs	visually or photometrically	40 plates
M/E1-129-100	**MICRONAUT-S Pneumococci & Haemophilus**	1 test/plate Determine resistances by measuring MIC for all relevant antimicrobial agents against pneumococci and *Haemophilus*.	18 - 24 hrs	visually or photometrically	100 plates
M/E1-099-100	**MICRONAUT-S MHK Pseudomonas**	1 test/plate Determine resistances by measuring MIC for pseudomonas-active antimicrobial agents. (new: ceftolozane/ tazobactam and ceftazidime/ avibactam).	18 - 24 hrs	visually or photometrically	100 plates
M/E1-981-040	**MICRONAUT-S CF**	1 test/plate Testing of multiple drug resistant non-fermenters from patients with cystic fibrosis.	18 - 24 hrs	visually or photometrically	40 plates

MICRONAUT

Special plates for interlaboratory comparison

Art. No.	Product	Description	Incubation time	Evaluation	Packing
M/EB-379-005	**MICRONAUT-SB Ringversuch Urologie**	1 test/plate AST towards MIC for external laboratory control for urologists.	18 - 24 hrs	visually or photometrically	5 plates
M/E1-028-005	**MICRONAUT-S MHK Ringversuch**	1 test/plate AST towards MIC for external laboratory control.	18 - 24 hrs	visually or photometrically	5 plates

MICRONAUT reagents

Some identification tests require adding of reagent before measuring.

Art. No.	Product	Associated MCN plate	Tests	Packing
M/E2-301-001	**Indol Reagent**	MICRONAUT-IDS/UR/NF/GNE	400	100 ml
M/E2-303-001	**Nitrate Reagent A**	Optional for MICRONAUT ID plates: MICRONAUT-RPO/IDS/UR/NF/GNE		100 ml
M/E2-304-001	**Nitrate Reagent B**	Optional for MICRONAUT ID plates: MICRONAUT-RPO/IDS/UR/NF/GNE		100 ml
M/E2-308-001	**Ninhydrin Reagent**	MICRONAUT-STREP		2 x 4 ml
M/E2-305-001	**Paraffin Oil**	MICRONAUT-IDS/NF/STREP/RPO/GNE/ STAPH/UR	Depending on the product	100 ml
M/E2-310-001	**Peptidase Reagent**	MICRONAUT-IDS/RPO/UR	Depending on the product	100 ml
M/E2-312-001	**NaCl**	MICRONAUT identifications	Depending on the product	1 x 1000 ml
M/E2-323-001	**AST Reagent Kit**	MICRONAUT-AM		2 (4 x 4 ml)

MICRONAUT media

Bacterial suspension is prepared in MCN media.

Art. No.	Product	Associated MCN plate	Tests	Packing
M/E2-306-100	**MICRONAUT-NF Susmed**	MICRONAUT-NF	100	100 x 6 ml
M/E2-314-100	**MICRONAUT-Candida Susmed**	MICRONAUT-Candida	100	100 x 6 ml
M/E2-331-020	**Mueller Hinton Broth, cation adjusted**	MICRONAUT-S	20	20 x 11 ml
M/E2-331-100	**Mueller Hinton Broth, cation adjusted**	MICRONAUT-S	100	100 x 11 ml
M/E2-311-100	**MICRONAUT-H-Medium**	MICRONAUT-S, fastidious microorganisms	100	100 x 11 ml
M/E2-330-020	**MICRONAUT-Wilkins-Chalgren Broth**	MICRONAUT-S Anaerob	20	20 x 11 ml
M/E2-324-020	**MICRONAUT-RPMI-1640 Medium + MOPS + Glucose**	MICRONAUT-AM	20	20 x 11 ml
M/E2-319-100	**MICRONAUT-SB Medium**	MICRONAUT-SB	100	100 x 11 ml
M/E2-338-100	**MICRONAUT-ID Medium**	MICRONAUT-UR	100	100 x 5.5 ml
M/E2-337-100	**MICRONAUT-AST Medium**	MICRONAUT-UR	100	100 x 5.5 ml
M/E2-318-010	**MICRONAUT-SB Medium dehydrated**	MICRONAUT-SB	Depending on the product used	10 x for 5 l each

MICRONAUT

MICRONAUT software

MICRONAUT software offers after automized reading, calculation, and interpretation of identification and susceptibility testing by using MICRONAUT systems.

Art. No.	Product	Description	Packing
M/U8-305-001	**MICRONAUT Software**	Basic module	1 unit
	QS Module	Record of quality control data.	1 unit
	Statistic Module	Statistical record of resistance data.	1 unit

Instruments

Art. No.	Product	Description	Packing
M/BH3-880-001	**Pipette**	Electronic 8-channel stepper for fast inoculation of 12 x 100 µl.	1 unit
M/LT51119000	**Reader**	Reader for fast measurement of MCN plates.	1 unit
M/PRE-001-001	**Precision™ XS**	Pipetting instrument for workflow of MCN AST plates.	1 unit
M/L4Y-100-001	**Densitometer**	Tube densitometer for adjustment of bacterial suspensions.	1 unit
M/2350	**McFarland Standard Set 0.5 / 1.0 / 2.0**	McFarland standards are used as a reference to adjust the density of bacterial suspensions.	3 tubes

Consumables

Art. No.	Product	Description	Packing
M/ST3-001-500	**Matrix pipette tips**	For use with the Matrix pipette.	500 units
M/LH-B791204	**Biohit Optifit Tips Flexi-Bulk 1200**	For use with the Biohit pipette.	480 units
M/BH3-487-096	**Biohit tips rack 96**	For use with the Biohit pipette.	1 rack per 96 tips
M/R4-510-050	**1-Channel reservoirs, autoclavable**	For easy plate inoculation with 1 test/plate.	50 units
M/R4-510-350	**1-Channel reservoirs, disposable product**	For easy plate inoculation with 1 test/plate.	350 units
M/R4-506-050	**2-Channel reservoirs, autoclavable**	For easy plate inoculation with 2 tests/plate.	50 units
M/R4-506-350	**2-Channel reservoirs, disposable product**	For easy plate inoculation with 2 tests/plate.	350 units
M/R4-508-050	**4-Channel reservoirs, autoclavable**	For easy plate inoculation with 4 tests/plate.	50 units
M/R4-508-350	**4-Channel reservoirs, disposable product**	For easy plate inoculation with 4 tests/plate.	350 units
B2-003-040	**MICRONAUT foil perforated, 40 units**	For sealing of MCN identification plates (included in standard packaging).	40 units
B3-002-040	**MICRONAUT foil unperforated, 40 units**	For sealing of MCN AST plates (included in standard packaging).	40 units

The MICRONAUT system prices are available on request. Please feel free to contact us.