MAIKOARRAY

Centrifuges, Combispins, Multispins

FV-2400 Microspin, Mini-Centrifuge/Vortex

Mini-centrifuge/vortex Microspin **FV-2400** is specially designed for genetic engineering research (for PCR-diagnostics experiments). Units can be used in microbiological, biochemical, clinical laboratories and industrial biotechnological laboratories.

MicroSpin ensures possibility for simultaneous mixing and separation of samples, using centrifuge and mixing modules, located on the common spin-module.

FV-2400 is an "open type" centrifuge (without lid), that increases the speed of centrifugation and resuspension operations.

FV-2400 blue colour (standard)

FV-2400 white colour (optional)

Specifications:		
Rotation speed (fixed)	2800 rpm	3500 rpm
Max. RCF	450 × *g*	700 × *g*
Continuous and impulse operation modes		
Overall dimensions (W × D × H)	120 × 170 × 120 mm	
Weight, not more	1.7 kg	
Nominal operating voltage	120 or 230V; 50Hz	120 or 230V; 60Hz
Power consumption (120 / 230 V)	30 W (0.27 A) / 30 W (0.13 A)	30 W (0.27 A) / 25 W (0.1 A)

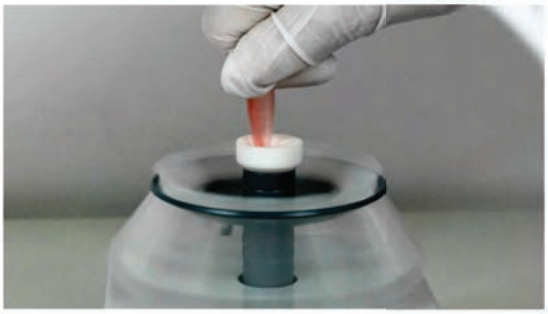
FV-2400 is supplied with 2 standard rotors:

1. **R-1.5M** for 12 × 1.5 ml microtubes;
2. **R-0.5/0.2M** for 12 × 0.5 ml and 12 × 0.2 ml microtubes;

Other types of rotors are available on request, including rotor for strips

3 4 5

Tube vortexing on FV-2400



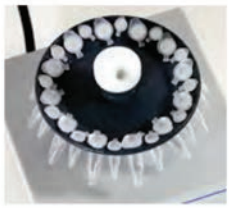
Catalogue number:

FV-2400 blue with **R-1.5M** and **R-0.5/0.2M**	MA-010201-ABA
FV-2400 white with **R-1.5M** and **R-0.5/0.2M**	MA-010201-AAA

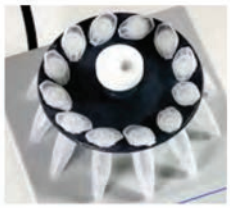
Interchangeable rotors for FV-2400

Rotor	Description	Capacity	Type	Catalogue number
1	**R-0.5/0.2M** 12 × 0.5 ml and 12 × 0.2 ml microtubes	24	Standard	MA-010201-BK
2	**R-1.5M** 12 × 1.5 ml microtubes	12	Standard	MA-010201-AK
3	**R-2/0.5** 8 × 2.0 ml and 8 × 0.5 ml microtubes	16	Optional	MA-010205-CK
4	**R-2/0.5/0.2** 6 × 2.0 ml. 6 × 0.5 ml and 6 × 0.2 ml microtubes	18	Optional	MA-010205-DK
5	**SR-16** Two 8-section strips for 0.2 ml microtubes	16	Optional	MA-010202-AK

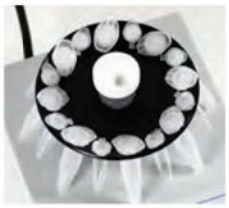
1 *R-0.5/0.2*



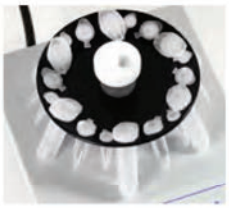
2 *R-1.5*



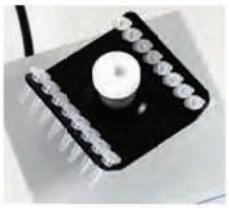
3 *R-2/0.5*



4 *R-2/0.5/0.2*



5 *SR-16*



FVL-2400N Combispin, Mini-Centrifuge/Vortex

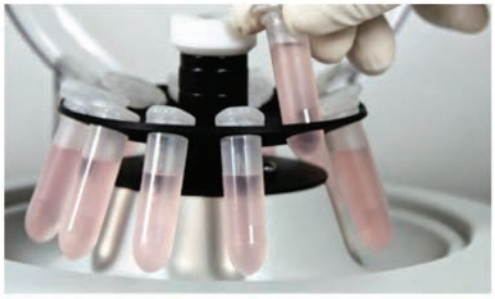
Mini-centrifuge/vortex Combispin **FVL-2400N** is specially designed for genetic engineering research (for PCR-diagnostics experiments). Units can be used in microbiological, biochemical, clinical laboratories and industrial biotechnological laboratories.

Combispin ensures possibility for simultaneous mixing and separation of samples, using centrifuge and mixing modules, located on the common spin-module.

FVL-2400N is provided with protection mechanism that stops the rotor motion when the lid is opened.

Specifications:

Rotation speed (fixed)	2800 rpm	3500 rpm
Max. RCF	450 × *g*	700 × *g*
Continuous and impulse operation modes		
Safety	Stop at open lid	
Overall dimensions (W × D × H)	190 × 235 × 125 mm	
Weight, not more	2.1 kg	
Nominal operating voltage	120 or 230V; 50Hz	120 or 230V; 60Hz
Power consumption (120 / 230 V)	30 W (0.27 A) / 30 W (0.13 A)	30 W (0.27 A) / 25 W (0.1 A)



FVL-2400 is supplied with 2 standard rotors:

1. **R-1.5** for 12 × 1.5 ml microtubes;
2. **R-0.5/0.2** for 12 × 0.5 ml and 12 × 0.2 ml microtubes;

Other types of rotors are available on request, including rotor for strips 3 4 5

Catalogue number:

FVL-2400N with **R-1.5** and **R-0.5/0.2**	MA-010202-AAA2

Interchangeable rotors for FVL-2400N

Rotor	Description	Capacity	Type	Catalogue number
1	**R-0.5/0.2** 12 × 0.5 ml and 12 × 0.2 ml microtubes	24	Standard	MA-010205-BK
2	**R-1.5** 12 × 1.5 ml microtubes	12	Standard	MA-010205-AK
3	**R-2/0.5** 8 × 2.0 ml and 8 × 0.5 ml microtubes	16	Optional	MA-010205-CK
4	**R-2/0.5/0.2** 6 × 2.0 ml. 6 × 0.5 ml and 6 × 0.2 ml microtubes	18	Optional	MA-010205-DK
5	**R-16** Two 8-section strips for 0.2 ml microtubes	16	Optional	MA-010202-AK

1 R-0.5/0.2 *2 R-1.5* *3 R-2/0.5* *4 R-2/0.5/0.2* *5 SR-16*

MSC-3000 and MSC-6000, Centrifuge/Vortex Multispin

Centrifuge/vortex Multi-Spin is a product of many year evolution of spin-mix-spin technology that is intended for collecting micro volumes of reagents on the microtube bottom (first centrifugation spin), following mixing (mix) and collecting the reagents again from the walls and cover of the microtube (second spin). We named this repetitive algorithm of operation that is aimed at reducing the mistakes during sample preparation in PCR analysis a "sms-algorithm".

Multi-Spin is a fully automatic device for reproducing sms-algorithm for 12 tubes at one time, that allows saving time considerably. A must-have instrument for PCR and DNA analyses.

Multi Spin is four devices combined in one:

1. Centrifuge — Maximum RCF:

MSC-3000: up to 800 × *g*

MSC-6000: up to 2350 × *g*

2. Vortex (3 mixing modes — **soft, medium, hard**; regulated time; Vortexing regulation timer 1–20 sec)
3. Centrifuge/vortex;
4. SMS-cycler for realization of the "sms-algorithm".

MSC-6000

MSC-3000

Comparison of FVL-2400N, MSC-3000 and MSC-6000

Multi-Spin allows considerable time saving compared to Combispin by automatically performing cycling program of sample mixing and spinning according to the set "Spin-Mix-Spin" cycle for 12 microtubes simultaneously.

FVL-2400N

MSC-3000

MSC-6000

Specifications:	FVL-2400N	MSC-3000	MSC-6000
Speed range max.	2800 rpm	3500 rpm	6000 rpm
RCF max.	700 × *g*	800 × *g*	2350 × *g*
Number of tubes vortexing	1 individually	12 simultaneously	
Time for completing "Spin-Mix-Spin" cycle:			
for 2 microtubes	60 sec	25 sec	15 sec
for 12 microtubes	5–6 min	1 min 30 sec	1 min
for 100 microtubes	60 min	15 min	10 min
Unit price ratio	1 ×	1.6 ×	1.7 ×

Specifications:

Model	MSC-3000	MSC-6000
Speed regulation range (increment 100 rpm)	1000–3500 rpm	1000–6000 rpm
RCF max.	800 × *g*	2350 × *g*
Spin timer	1 sec–99 min	1 sec–30 min
Mixing strength	Soft, medium, hard	
Mixing time	0–20 sec (increment 1 sec)	
SMS-cycle regulation	1–999 cycles	
Display	LCD, 2 × 16 signs	
Safety	Autostop at open lid	Lid lock
Overall dimensions (W × D × H)	190 × 235 × 125 mm	
Weight, not more	2.5 kg	
Input current/power consumption	DC 12V, 11 W (0.9 A)	DC 24V, 24 W (1 A)
External power supply	Input AC 100-240 V 50/60Hz, Output DC 12 V	Input AC 100-240 V 24 V 50/60Hz, Output DC 24V

Rotor R-1.5

Units are supplied with 2 standard rotors:

1. **R-1.5** for 12 × 1.5 ml microtubes;
2. **R-0.5/0.2** for 12 × 0.5 ml and 12 × 0.2 ml microtubes;

Other types of rotors are available on request, including rotor for strips

3 4 5

Catalogue number:

MSC-3000 with **R-1.5, R-0.5/0.2**	MA-010205-AAN
MSC-6000 with **R-1.5, R-0.5/0.2**	MA-010211-AAL

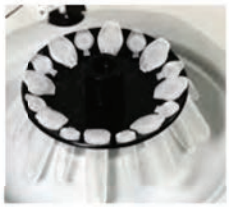
Interchangeable rotors for MSC-3000 and MSC-6000

Rotor	Description	Capacity	Type	Catalogue number
1	**R-0.5/0.2** 12 × 0.5 ml and 12 × 0.2 ml microtubes	24	Standard	MA-010205-BK
2	**R-1.5** 12 × 1.5 ml microtubes	12	Standard	MA-010205-AK
3	**R-2/0.5** 8 × 2.0 ml and 8 × 0.5 ml microtubes	16	Optional	MA-010205-CK
4	**R-2/0.5/0.2** 6 × 2.0 ml. 6 × 0.5 ml and 6 × 0.2 ml microtubes	18	Optional	MA-010205-DK
5	**SR-16** Two 8-section strips for 0.2 ml microtubes	16	Optional	MA-010202-AK

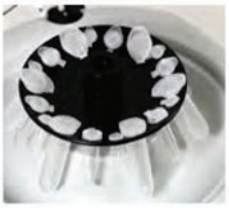
1 *R-0.5/0.2*

2 *R-1.5*

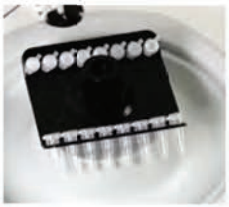
3 *R-2/0.5*



4 *R-2/0.5/0.2*



5 *SR-16*



LMC-3000, Laboratory Centrifuge

LMC-3000 is a modern low-speed bench-top centrifuge designed for operation with microtest plates and centrifuge tubes up to 50 ml. This device is widely used in biomedical profile laboratories.

Features:

* Soft start and run-down of the rotor;
* User-friendly setting of centrifugation parameters (speed and time) and simultaneous display of both set and actual values;
* Safe operation at any speed is provided by metal protection chamber and case cover, automatic stop at imbalance and a lock keeping the lid closed while the centrifuge is running;
* Low noise level;
* Wide choice of accessory rotors.

Specifications:

Speed regulation range	100–3000 rpm
for centrifuge tubes	(1700 × *g*)
Speed regulation range	100–2000 rpm
for microtitre plates	(560 × *g*)
Speed increment	100 rpm
Rotor imbalance diagnostics (automatic stop, “IMBALANCE” warning)	
Display	LCD, 2 × 16 signs
Centrifugation time	1–90 min (increment 1 min)
Chamber diameter	335 mm
Overall dimensions (W × D × H)	495 × 420 × 235 mm
Weight, not more	13.5 kg
Nominal operating voltage	230 V, 50/60 Hz or 120 V, 50/60 Hz
Power consumption (230 / 120 V)	110 W (0.5 A) / 120 W (1 A)

Catalogue number:

LMC-3000	MA-010208-AAA

Rotor R-12/15

LMC-4200R, Laboratory Bench-top Centrifuge with Refrigeration

Laboratory bench-top centrifuge with refrigeration **LMC-4200R** provides temperature control of biomaterial during centrifugation. Temperature control of the so-called "cold-shelf" is a gold standard for enzymologists and cell biologists because it ensures conditions necessary for reproducibility of the sample preparation stage. Lack of temperature control at this stage can cause unpredictable results.

LMC-4200R is a modern centrifuge designed for operation with microtest plates and tubes from 10 to 50 ml.

Rotor R-12/10 and icy layer on the chamber walls

LMC-4200R, interface

Features:

* Effective way of acceleration and deceleration: Run-up time 15 sec; Run-down time, not more 30 sec;
* Efficient rate of chamber refrigeration: under 10 min;
* Maintenance of stable temperature during operation;
* User-friendly setting of centrifugation parameters (speed, temperature, time) and simultaneous display of both set and actual values;
* Safe operation is provided by a metal protection chamber and a case cover, automatic stop at imbalance (emergency shutdown, «IMBALANCE» displayed) and a lock keeping the lid closed while the centrifuge is running.
* Low noise level;
* Wide choice of accessory rotors (see page 40).

Specifications:

Temperature setting range	–10°C ... +25°C
Temperature control	–10°C ...10° below ambient range
Temperature setting resolution	1°C
Speed regulation range	100–4200 rpm
for centrifuge tubes	(3370 × *g*)
Speed regulation range	100–2000 rpm
for microtitre plates	(560 × *g*)
Speed increment	100 rpm
Rotor imbalance diagnostics (automatic stop, "IMBALANCE" warning)	
Rotor run-down time, not more	30 sec
Display	LCD, 2 lines
Centrifugation time	1–90 min (increment 1 min)
Chamber diameter mm	335
Dimensions	635 × 580 × 335 mm
Weight, not more	60 kg
Nominal operating voltage	230 V, 50 Hz or 120 V, 50/60 Hz
Power consumption (230 V)	990 W (4.3 A)

Catalogue number:

LMC-4200R	MA-010212-AAA

Interchangeable rotors and accessories for LMC-3000 and LMC-4200R

R-2, Swing-out rotor for standard 96-well microtitre plates

Rotor type	Swing-out
Dimensions (w × l)	128 × 85.6 mm
Max. height	up to 45 mm
Capacity	2
Max. speed	2000 rpm
Max. RCF:	
LMC-3000	560 × *g*
LMC-4200R	560 × *g*
Manufacturers: Nunc, Greiner, Sarstead, Corning, etc	
Catalogue number	MA-010208-AK

R-12/10, Swing-out rotor for round bottom centrifuge tube

Rotor type	Swing-out
Dimensions (Ø × length)	16 × 105 mm
Capacity	12
Tube's volume	10–15 ml
Max. speed	4200 rpm
Max. RCF:	
LMC-3000	1700 × *g*
LMC-4200R	3370 × *g*
Tube Manufacturers: Nunc, Greiner, etc	
Catalogue number	MA-010208-BK

Additional adapter sets* for R-12/10:	Description	Dimensions (Ø × length)	Catalogue BN
BN-numbe13/75	For vacutainers 2–5 ml	13 × 75 mm	MA-010208-UK
BN-13/100	For vacutainers 4–8 ml	13 × 100 mm	MA-010208-QK
BN-16/100	For vacutainers 8–9 ml	16 × 100 mm	MA-010208-RK

** — Set of 12 adapters, made from POM-C (polyacetal). Max temperature +100°C*

R-12/15, Swing-out rotor for conical bottom centrifuge tube

Rotor type	Swing-out
Dimensions (Ø × length)	17 × 120 mm
Capacity	12
Tube volume	15 ml
Max. speed	4200 rpm
Max. RCF:	
LMC-3000	1700 × *g*
LMC-4200R	3370 × *g*
Tube Manufacturers: Falcon, Greiner, Sarstead, etc	
Catalogue number	MA-010208-EK

Interchangeable rotors and accessories for LMC-3000 and LMC-4200R

R-6, Swing-out rotor for centrifuge tube with cap, conical bottom

Rotor type	Swing-out
Dimensions (Ø × length)	29 × 115 mm
Capacity	6
Tube volume	50 ml
Max. speed	4200 rpm
Max. RCF:	
LMC-3000	1700 x*g*
LMC-4200R	3370 × *g*
Tube Manufacturers: Falcon, Greiner, Sarstead, Corning, etc	
Catalogue number	MA-010208-DK

Rotor holder RR-U

Catalogue number	MA-010208-UK

High-speed Mini-centrifuge Microspin 12 (*Upgraded*)

High-speed mini-centrifuge Microspin 12 is a compact desktop centrifuge designed for biomedical laboratories.

Microspin 12 is used for extracting RNA/DNA samples, sedimentation of biological components, biochemical and chemical analysis of microsamples.

A display simultaneously shows actual and set values for:

1. Centrifugation time;
2. Set and actual speed values;
3. Relative centrifugal force.

A brushless rotor provides noiseless performance at the maximal speed and long service life. An angular rotor is designed for accommodation of 12 Eppendorf microtubes. The rotor is made of aluminium, it is equipped with fixing lid and included in the standard specification of the centrifuge. Constant airflow around the rotor reduces risk of samples overheating during operation.

Metal protective inserts inside the casing and lid, automatic imbalance switch-off and locking of a lid provide safe operation. Completion of centrifugation is indicated by a sound signal.

The external power supply unit allows operation of Microspin 12 in cold rooms (at ambient temperatures from +4°C to +25°C).

Protection lid

Built-in rotor MSR-12 and a protection lid

Specification:

New! Speed regulation range	100–14,500 rpm (100 rpm increment)
New! Max. RCF	12,400 × g
Centrifugation time	1–30 min (increment 1 min)
Time for reaching max. speed	20 sec
Rotor run-down time, not more than	10 sec
Display	LCD, 2 line
Safety: Rotor imbalance diagnostics: automatic stop, "IMBALANCE" warning	
Overall dimensions (W × D × H)	200 × 240 × 125 mm
Weight, not more	3.5 kg
Input current/power consumption	24 V, 2.5 A / 60 W
External power supply	Input AC 100-240 V 50/60 Hz, Output DC 24 V

Standard set:

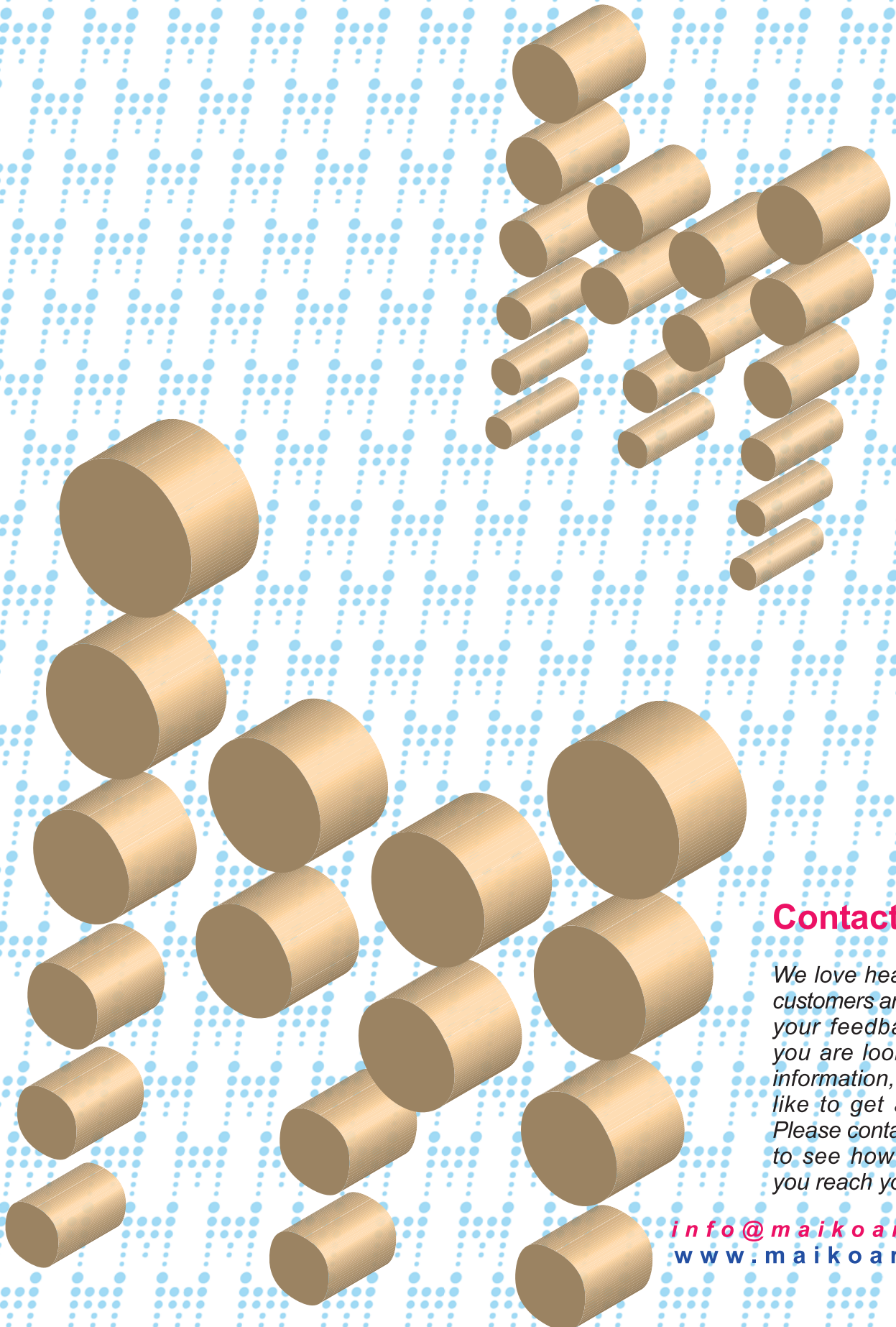
Built-in rotor MSR-12	12 places for microtubes 1.5/2 ml
1 **A-05** adapter	12 pieces for microtubes 0.5 ml
2 **A-02** adapter	12 pieces for microtubes 0.2 ml

Catalogue number:

Microspin 12 with standard set	MA-010213-AA1
A-05	MA-010213-AK
A-02	MA-010213-BK

1 ***Adapter A-02***

2 ***Adapter A-05***



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