FV-2400, Microspin and FVL-2400N, Combi–Spin

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Medical–Biological Research & Technologies

DESCRIPTION

Basic Plus Product Class

Minicentrifuges-Vortexes Micro–Spin **FV-2400** and Combi–Spin **FVL-2400N** is specially designed for genetic engineering research (for PCR–diagnostics experiments). Units can be used in biomedical and biotechnological laboratories.

Minicentrifuges-Vortexes provide simultaneous mixing and separation of 12 samples, using centrifuge and mixing modules, located on the common spin–module. Sequential combination of these operations allows you to collect all material at the bottom of the tube.

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

FVL-2400N has a bioform design and equipped with a transparent protective lid accompanied by protection mechanism that stops the rotor motion when the lid is opened.

FV-2400

Rotor R-1.5

Basic Plus Product Class

FVL-2400N

Product video is available on the website

SPECIFICATIONS

	FV-2400	FVL-2400N	FV-2400	FVL-2400N
Rotation speed (fixed)	2,800 rpm		3,500 rpm	
Max. RCF	500×*g*		700×*g*	
Continuous and impulse operation modes				
Safety		Stop at open lid		Stop at open lid
Overall dimensions (W×D×H)	120×170×120 mm	190×235×125 mm	120×170×120 mm	190×235×125 mm
Weight	1.4 kg	1.7 kg	1.4 kg	1.7 kg
Nominal operating voltage	230 V, 50 Hz	120 or 230 V, 50 Hz	120 V, 60 Hz	120 or 230 V, 60 Hz
Power consumption (120 / 230 V)	30 W (0.13 A)		30 W (0.27 A)	

Rotors for FV-2400 and FVL-2400N

ORDERING INFORMATION:	Cat. number
FV-2400 white with standard rotor **R-1.5M** and **R-0.5/0.2M**	BS-010201-AAA
FVL-2400N with standard rotors **R-1.5** and **R-0.5/0.2**	BS-010202-AAA

Optional rotors: see table below

Rotors for FV-2400:		Capacity	Type	Cat. number
❶ **R-0.5/0.2M**	12×0.5 ml and 12×0.2 ml microtubes	24	Standard	BS-010201-BK
❷ **R-1.5M**	12×1.5 ml microtubes	12	Standard	BS-010201-AK
❸ **R-2/0.5**	8×2.0 ml and 8×0.5 ml microtubes	16	Optional	BS-010205-CK
❹ **R-2/0.5/0.2**	6×2.0 ml. 6×0.5 ml and 6×0.2 ml microtubes	18	Optional	BS-010205-DK
❺ **SR-16**	Two 8-section strips for 0.2 ml microtubes	16	Optional	BS-010202-AK
❻ **SR-64***	Eight 8-section strips for 0.2 ml microtubes	64	Optional	BS-010201-EK

* — for any type of strips including paired

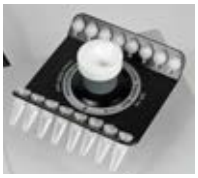
❶ R-0.5/0.2M

❷ R-1.5M

❸ R-2/0.5

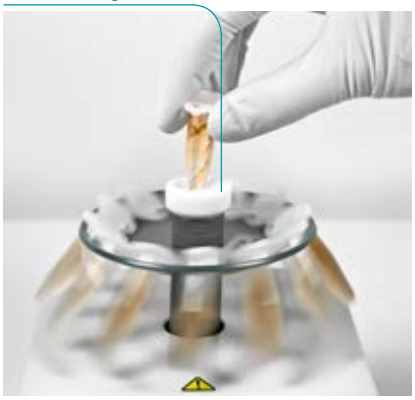
❹ R-2/0.5/0.2

❺ SR-16



❻ SR-64

Tube vortexing on FV-2400



Rotators for FVL-2400N:		Capacity	Type	Cat. number
❶ **R-0.5/0.2**	12×0.5 ml and 12×0.2 ml microtubes	24	Standard	BS-010205-BK
❷ **R-1.5**	12×1.5 ml microtubes	12	Standard	BS-010205-AK
❸ **R-2/0.5**	8×2.0 ml and 8×0.5 ml microtubes	16	Optional	BS-010205-CK
❹ **R-2/0.5/0.2**	6×2.0 ml. 6×0.5 ml and 6×0.2 ml microtubes	18	Optional	BS-010205-DK
❺ **SR-16**	Two 8-section strips for 0.2 ml microtubes	16	Optional	BS-010202-AK
❻ **SR-32***	Four 8-section strips for 0.2 ml microtubes	32	Optional	BS-010205-FK

* — not compatible with Combi-Spins produced before 2015

❶ R-0.5/0.2

❷ R-1.5

❸ R-2/0.5

❹ R-2/0.5/0.2

❺ SR-16

❻ SR-32

MSC-3000 and MSC-6000, Multi–Spins

DESCRIPTION

Centrifuge/vortex Multi–Spins **MSC-3000** and **MSC-6000** are products of many years evolution of Spin–Mix–Spin technology that is intended for collecting micro volumes of reagents on the microtube's bottom (first centrifugation spin), following mixing (mix) and collecting the reagents again from the walls and cap of the microtube (second spin). We named this repetitive algorithm of operation that is aimed at reducing the mistakes during sample preparation for PCR analysis a "sms–algorithm".

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

Multi Spin is four devices combined in one:

1. Centrifuge — Maximum RCF:
   MSC-3000: up to 800×*g*
   MSC-6000: up to 2,350×*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

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Premium
Product Class

MSC-3000

Premium
Product Class

Both product video is available on the website

SAVING TIME WITH MULTI-SPIN Multi–Spin allows considerable time saving compared to Combi–Spin 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**
Speed control max.	2,800 rpm	3,500 rpm	6,000 rpm
RCF max.	500×*g*	800×*g*	2,350×*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	90 sec	60 sec
for 100 microtubes	60 min	15 min	10 min
Unit price ratio	1×	1.5×	1.6×

Australian distributors:
Fisher Biotec Australia
free call: 1800 066 077
email: info@fisherbiotec.com
web: www.fisherbiotec.com

MSC-3000 and MSC-6000, Multi–Spins

SPECIFICATIONS

	MSC-3000	MSC-6000
Speed regulation range (increment 100 rpm)	1,000–3,500 rpm	1,000–6,000 rpm
RCF max.	800×*g*	2,350×*g*
Spin timer	1 sec–99 min	1 sec–30 min
Vortexing intensity	Soft, medium, hard	
Vortexing 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	2.1 kg	2.5 kg
Input current/power consumption	12 V, 11 W (0.9 A)	24 V, 24 W (1 A)
External power supply	Input AC 100–240 V 50/60 Hz; Output DC 12 V	Input AC 100–240 V 50/60 Hz; Output DC 24 V

Rotor R-1.5

ORDERING INFORMATION: Cat. number

MSC-3000 with standard rotors **R-1.5, R-0.5/0.2** BS-010205-AAN

MSC-6000 with standard rotors **R-1.5, R-0.5/0.2** BS-010211-AAL

Optional rotors: see table below

Optional rotors:		Capacity	Type	Cat. Number
❶ **R-0.5/0.2**	12×0.5 ml and 12×0.2 ml microtubes	24	Standard	BS-010205-BK
❷ **R-1.5**	12×1.5 ml microtubes	12	Standard	BS-010205-AK
❸ **R-2/0.5**	8×2.0 ml and 8×0.5 ml microtubes	16	Optional	BS-010205-CK
❹ **R-2/0.5/0.2**	6×2.0 ml, 6×0.5 ml and 6×0.2 ml microtubes	18	Optional	BS-010205-DK
❺ **SR-16**	Two 8-section strips for 0.2 ml microtubes	16	Optional	BS-010202-AK
❻ **SR-32***	Four 8-section strips for 0.2 ml microtubes	32	Optional	BS-010205-FK

* — Not compatible with Multi-Spins produced before 2015

❶ R-0.5/0.2

❷ R-1.5

❸ R-2/0.5

❹ R-2/0.5/0.2

❺ SR-16

❻ SR-32

CVP-2, Centrifuge vortex for PCR plates

Medical–Biological Research & Technologies

DESCRIPTION

After many years of Combined Centrifuge/Vortex concept success, we are proud to introduce the long awaited Centrifuge vortex for PCR plates, **CVP-2**, to the sample preparation market.

The Spin–Mix–Spin technology is intended to spin-down micro volumes of reagents on the well's bottom (first centrifugation spin), following mixing (mix) and spin-down the reagents again from the walls and cap of the well (second spin). We named this repetitive algorithm of operation that is aimed at reducing the mistakes during sample preparation for PCR analysis a "sms–algorithm". This algorithm is registered by BioSan.

CVP-2 is a fully automatic device for reproducing sms–algorithm for 2 PCR plates at the same time, thus saving time considerably. A must-have instrument for PCR and DNA analyses laboratory.

Premium Product Class

Product video is available on the website

CVP-2 is 4 devices combined in 1:

1. Centrifuge — Maximum RCF: 245 × g (1,500 rpm)
2. Vortex (300–1,200 rpm; Vortexing regulation timer 0–60 sec)
3. Centrifuge vortex
4. SMS–cycler for realization of the "sms–algorithm"

SPECIFICATIONS

Speed regulation range	300–1,500 rpm
Max. RCF	245 × g
Vortex regulation range	300–1,200 rpm
Setting resolution	100 rpm
Plate type:	
• Without adapter:	96-well skirted PCR plates, PCR strips in a frame;
• With adapter **AP-96:**	96-well semi-skirted and non-skirted PCR plates;
• With adapter **AP-384:**	384-well PCR plates;
Display	LCD, 64 × 128 pixels
Centrifugation mode time range	0–30 min
Centrifugation mode time increment	1 s; after 1 min – 1 min
Vortex mode time range	0–60 sec
Number of programmable cycles	1–999
Chamber diameter	210 mm
Overall dimensions (W × D × H)	285 × 350 × 190 mm
Weight	6.15 kg
Input current/power consumption	24V, 750 mA/18 W
External power supply	Input AC 100–240 V 50/60 Hz; Output DC 24 V

ORDERING INFORMATION:

	Cat. number
CVP-2	BS-010219-A02

With rotor for two PCR plates, protection lid and adapters AP-96* (a set of 2 adapters for 96-well semi-skirted and unskirted PCR plates)

Optional accessories:

AP-384*	BS-010219-EK

A set of 2 adapters for 384-well PCR plates

* — Adapters are made of Ertacetal® C and are autoclavable

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High-speed Mini-centrifuge **Microspin 12**

Basic Plus
Product Class

Product video is available on the website

Protection lid

❶ A-02 Adapters

❷ A-05 Adapters

DESCRIPTION

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

Microspin 12 is used for extraction of 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 and spin columns. 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 +40°C).

SPECIFICATIONS

Speed control range	1000–14,500 rpm (100 rpm increment)
Relative centrifugal force control range	50–12,400 × g
Digital time setting	15 sec – 30 min
Time setting resolution	1 min –15 sec; after 1 min – 1 min
Acceleration time up to 14,500 rpm	20 sec
Slowdown time, not more	10 sec
Display	LCD, 2 line
Safety: Rotor imbalance diagnostics: automatic stop, "IMBALANCE" warning	
Overall dimensions (W × D × H)	200 × 240 × 125 mm
Weight	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

ORDERING INFORMATION: Cat. number

Microspin 12	BS-010213-AA1
Built-in rotor MSR-12 (12 places for microtubes 1.5/2 ml) with protection lid MSL-SC and adapters A-02, A-05	

Additional/replacement parts:

MSL-SC, protection lid for rotors	BS-010213-EK
❶ **A-02,** 12 pieces for microtubes 0.2 ml	BS-010213-AK
❷ **A-05,** 12 pieces for microtubes 0.5 ml	BS-010213-BK

LMC-3000, Laboratory Centrifuge

Medical–Biological Research & Technologies

DESCRIPTION

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

FEATURES:

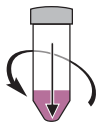
- Soft start and run-down of the rotor;
- User-friendly setting of centrifugation parameters and simultaneous display of both set and actual values;
- Safe operation at any speed is provided by metal protection chamber and case cover, automatic stop at imbalance and a lock keeping the lid closed while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

NEW FUNCTIONS

- Setting rotor speed in RPM or RCF (Relative Centrifugal Force);
- Multiple acceleration (Slow, Normal, Fast) and deceleration (0, Slow, Normal, Fast) modes and possibility to switch off forced braking;
- Wide choice of accessory rotors (see page 46).

Basic Plus
Product Class

Product video is available on the website



SPECIFICATIONS

Speed regulation range for centrifuge tubes	100–3,000 rpm (1,610 ×g)
Speed regulation range for microtitre plates	100–2,000 rpm (560×g)
Setting resolution	100 rpm
Rotor imbalance diagnostics (automatic stop, "IMBALANCE" warning)	
Display	LCD, 2×16 signs
Digital time setting	1–90 min (increment 1 min)
Chamber diameter	335 mm
Overall dimensions (W×D×H)	495×410×235 mm
Weight	11.8 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)

ORDERING INFORMATION:	Cat. number
LMC-3000 without rotors	BS-010208-AAA

Rotor R-12/15

Rotor R-24GC

LMC-4200R, Laboratory Refrigerated Centrifuge

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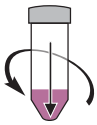
Premium
Product Class



Product video is available on the website

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

DESCRIPTION

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. Temperature control absence at this stage can cause unpredictable results.

LMC-4200R is a modern centrifuge designed for operation with microtest plates, Gel Cards and tubes from 2 to 50 ml.

FEATURES:

- Effective way of acceleration and deceleration:
  Run-up time 20 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;
- Possibility to switch off forced braking;
- Wide choice of accessory rotors (see page 46);

NEW FUNCTIONS*

- Rotor selection;
- Setting rotor speed in RPM or RCF (Relative Centrifugal Force);
- Multiple acceleration (Slow, Normal, Fast) and deceleration (0, Slow, Normal, Fast) modes and possibility to switch off forced braking;

* — The new features will be available from middle of 2017.
To follow the updates - subscribe to the newsletter at our website: www.biosan.lv

SPECIFICATIONS

Temperature control range	–10°C ... +25°C
Stable temperature maintenance range	25°C below ambient ... to +25°C
Temperature setting resolution	1°C
Speed regulation range for centrifuge tubes	100–4,200 rpm (3,155 × g)
Speed regulation range for microtitre plates	100–2,000 rpm (560 × g)
Speed setting resolution	100 rpm
Rotor imbalance diagnostics (automatic stop, "IMBALANCE" warning)	
Slowdown time, not more	30 sec
Display	LCD, 2 lines
Digital time setting	1–90 min (increment 1 min)
Chamber diameter	335 mm
Dimensions (W × D × H)	635 × 580 × 335 mm
Weight	56 kg
Nominal operating voltage	230 V, 50 Hz
Power consumption (230 V)	990 W (4.3 A)

ORDERING INFORMATION:	Cat. number
LMC-4200R without rotors	BS-010212-AAA

Interchangeable Rotors and Accessories for LMC-3000 and LMC-4200R

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NEW ROTOR FOR LMC-4200R

Rack **RR-U**

	Rotor **R-12/10**	Rotor **R-24/10**	Rotor **R-6**	Rotor **R-6P**
Rotor type	Swing-out			
Dimensions (Ø×length)	16×105 mm		29×115 mm	
Capacity	12	24	6	
Tube's volume	10-15 ml		50 ml	
Max. speed	4,200 rpm	4,000 rpm	4,200 rpm	
Max. RCF: **LMC-3000**	1,610×*g*	*Not applicable*	1,610×*g*	
Max. RCF: **LMC-4200R**	3,155×*g*	2,860×*g*	3,155×*g*	
Cat. number:	BS-010208-BK	BS-010212-JK	BS-010208-DK	BS-010208-XK

HOW TO CHOSE ROTOR?

PLASTIC CONICAL BOTTOM CENTRIFUGE TUBE
Manufacturers: Falcon, Greiner Bio-one, Sarstead, Corning, Nunc, TPP, etc.

15 ml

R-12/15

50 ml

Material: Aluminium

R-6

Material: POM Kocetal (Max. temperature +150°C)

R-6P

PLASTIC ROUND BOTTOM CENTRIFUGE TUBE, VACUTAINERS
Manufacturers: Nunc, Greiner, Greiner Bio-one, TPP, etc.

12 pcs.

2-9 ml + Adapters

10-15 ml

R-12/10

24 pcs.

2-9 ml + Adapters

10-15 ml

Only for LMC-4200R

R-24/10

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Interchangeable Rotors and Accessories for LMC-3000 and LMC-4200R

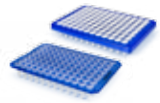
Rack **RR-U**

Rotor **R-12/15**		Rotor **R-2**	Rotor **R-24GC**
Angled Swing-out	Rotor type	Swing-out	
17×120 mm	Dimensions (w×l)	128×85.6 mm	53×74 mm
12	Capacity	2	24
15 ml	Max. height	up to 45 mm	—
4,200 rpm	Max. speed	2,000 rpm	1,500 rpm
1,610×*g*	Max. RCF: **LMC-3000**	560×*g*	280×*g*
3,155×*g*	**LMC-4200R**	560×*g*	280×*g*
BS-010208-EK	Cat. number:	BS-010208-AK	BS-010208-VK

STANDARD 96-WELL MICROTITRE PLATES AND DEEPWELL PLATES UP TO 45 MM
Manufacturers: Nunc, Greiner, Greiner Bio-one, etc.

R-2

96-WELL PCR PLATE OR SEMI-/ UNSKIRTED PCR PLATE
Manufacturers: Nunc, Greiner, Greiner Bio-one, etc.



Adapters

AP-96

Material: **Ertacetal® C** and is autoclavable

R-2

GEL CARDS
Manufacturers: Grifols®, DiaMed®, Bio-Rad® etc.

R-24GC, Rotor for Gel Cards for blood group serology testing (Forward Group, Reverse Group, RhD Type and 3 cell antibody screen). Recommended centrifugation time – 9 minutes

R-24GC

ORDERING INFORMATION: optional accesories for rotors			Cat. number
Adapters* for R-2:			
AP-96	2 adapters for 96-well semi-skirted and non-skirted PCR plates		BS-010219-DK
Adapters** for R-12/10, R-24/10		Vacutainers dimensions (Ø×length)	
BN-13/75	for vacutainers® 2–5 ml	13×75 mm	BS-010208-PK
BN-13/100	for vacutainers® 4–8 ml	13×100 mm	BS-010208-QK
BN-16/100	for vacutainers® 8–9 ml	16×100 mm	BS-010208-RK
Rack for rotors			
RR-U			BS-010208-UK

* — Set of 2 adapters, made of **Ertacetal® C** and is autoclavable

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