



## Shakers and Homogenizers Product Overview



### По вопросам продаж и поддержки обращайтесь:

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Барнаул (3852)73-04-60  
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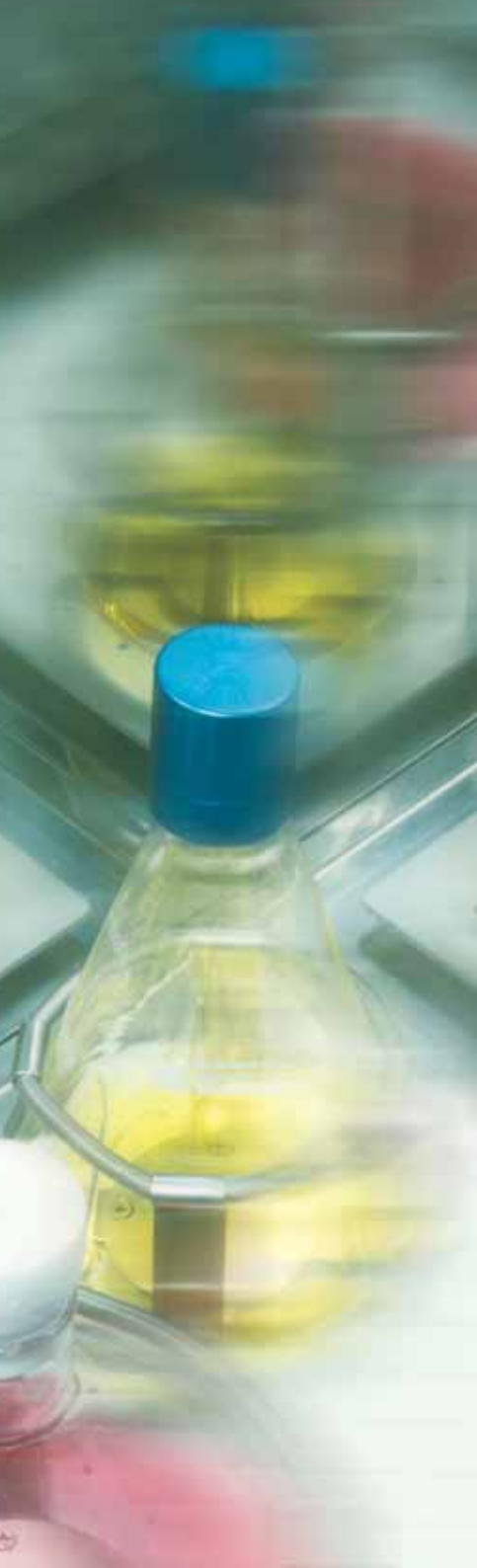
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# A profile of Sartorius Stedim Biotech

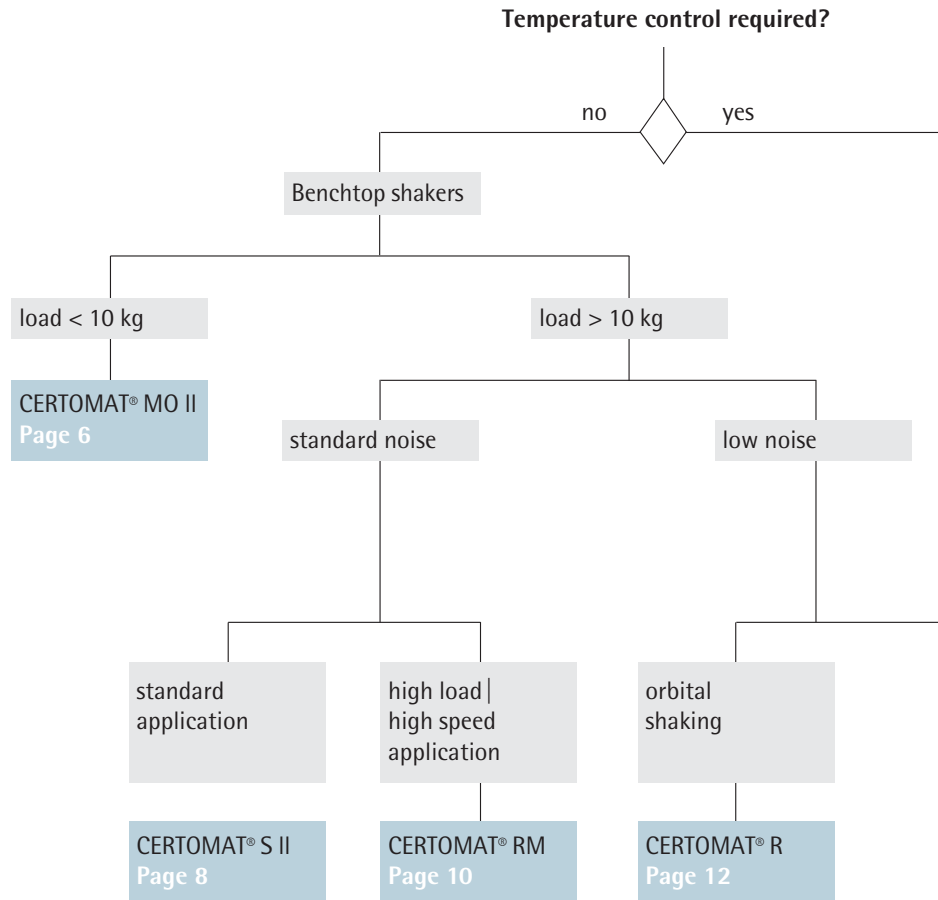
Sartorius Stedim Biotech is a leading provider of cutting-edge equipment and services for the development, quality assurance and production processes of the biopharmaceutical industry. Its integrated solutions covering fermentation, filtration, purification, fluid management and lab technologies are supporting the biopharmaceutical industry around the world to develop and produce drugs safely, timely and economically. Sartorius Stedim Biotech focuses on single-use technologies and value-added services to meet the rapidly changing technology requirements of the industry it serves. Strongly rooted in the scientific community and closely allied with customers and technology partners, the company is dedicated to its philosophy of "turning science into solutions".

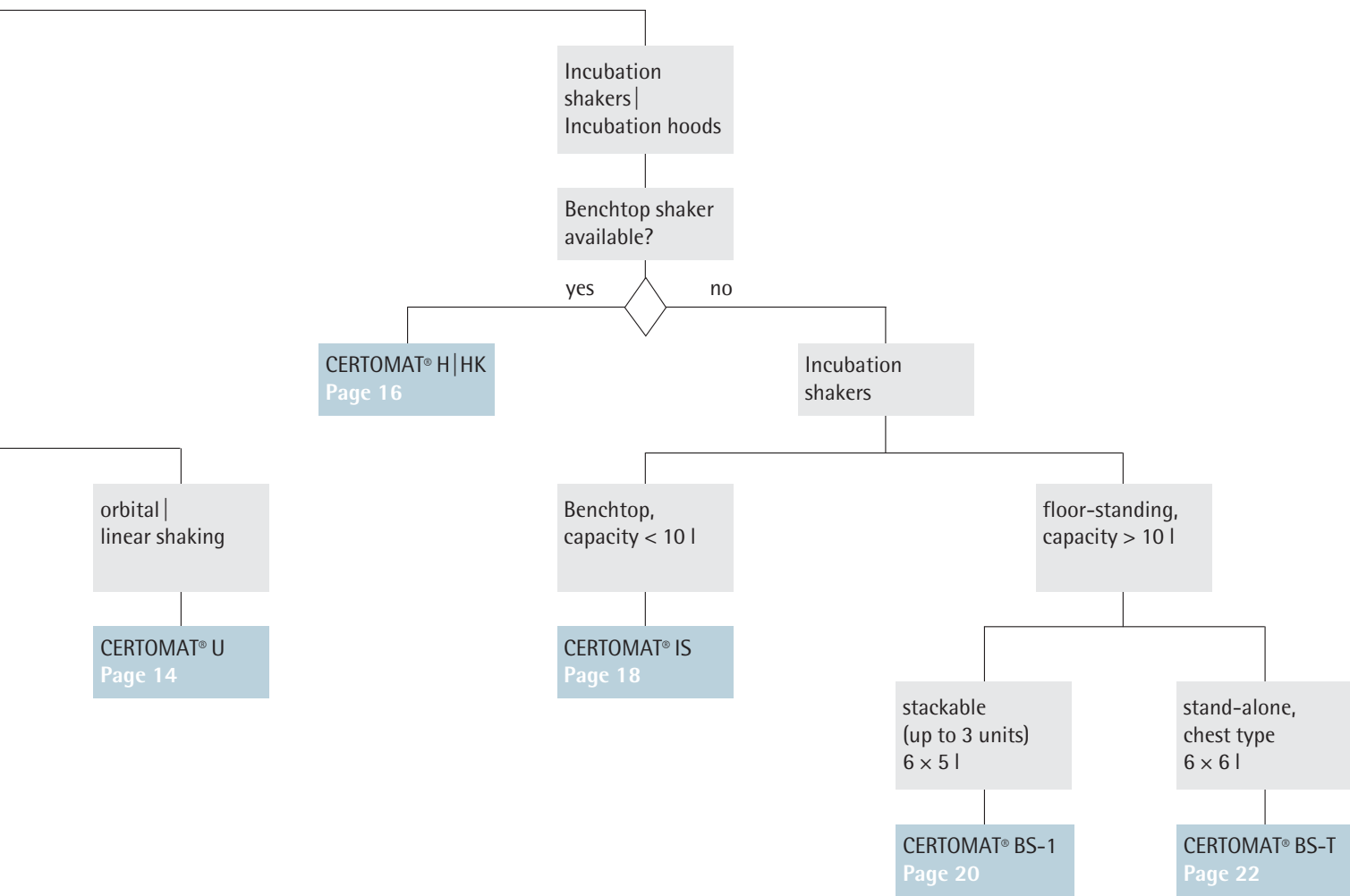
Headquartered in Aubagne, France, Sartorius Stedim Biotech is listed on the Euronext Paris. With its own manufacturing and R&D sites in Europe, North America and Asia and a global network of sales companies, Sartorius Stedim Biotech enjoys a worldwide presence. Its key manufacturing and R&D site is in Germany.





## Selection chart shakers







## Certomat® MO II

### The economical benchtop shaker

## Benefits

- basic unit
- analogue control of speed and time
- economy price

The CERTOMAT® MO II is the basic model of this product line, featuring a small footprint and easy handling with two analog control dials for setting speed and time.

Like with all other units of the CERTOMAT® product line, the user has a choice of two shaking amplitudes. Voltage can be [switched between 230 V and 115 V](#), 50–60 Hz.

For applications requiring temperature control, the CERTOMAT® MO II can be combined with the incubation hoods, CERTOMAT® H or HK. These features, together with the sturdy construction and the attractive price, make the CERTOMAT® MO II the ideal shaker for everyday work.

## Ordering information

CERTOMAT® MO II version with  
12.5 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8860858</b>	<b>14-559-173</b>

115 V|60 Hz

CERTOMAT® MO II/12.5 mm

CERTOMAT® MO II version with  
25 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8860866</b>	<b>14-559-174</b>

115 V|60 Hz

CERTOMAT® MO II/25 mm

All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 430 × 123 × 400 mm
Weight (without tray)	31 kg
Housing	Steel construction
Drive mechanism	Brushless motor, triple eccentric drive
Trays, type size	Type E EU (420 × 420 mm)
Tray fixation	By screws
Max. load	10 kg
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz, adjustable
Amperage	1.6 A at 115 V
Fuses	2 × T2.0 A at 115 V
Interference	class N according to EN 55014-2

### Operating data

Mode of shaking	Orbital, Ø 12.5 mm or 25 mm, according to version
Shaking speed	40 to 350 rpm
Accuracy	max. ± 5% of final value
Setting of speed	By potentiometer
Timing	0 to 120 minutes and continuous, mechanical timer
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity





## Certomat® S II

### The universal benchtop shaker

The CERTOMAT® S II with its powerful drive and digital control of speed and time is the classical workhorse for everyday lab work.

Long service life and quiet running are guaranteed by the proven construction with a brushless motor, the strong Poly-V belt and the triple-excentric drive system. The shaking intensity can be modulated by selecting an amplitude of 25 mm or 50 mm.

The CERTOMAT® S II is equipped with visual speed alarm, a memory function for automatic re-start after power failure and an analogue out for external recording of speed.

## Benefits

- standard unit
- digital control of speed and time
- analogue data out



## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 511 × 160 × 545 mm
Weight (without tray)	46 kg
Housing	Steel construction
Drive mechanism	Brushless motor, triple eccentric drive
Trays, type size	Type E EU (420 × 420 mm) Type F FU (800 × 420 mm)
Tray fixation	Simple snap mechanism
Max. load	20 kg, load compensation optimized for 10 kg load by counterweight
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Amperage	1.6 A at 115 V
Fuses	2 × T2 A at 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Operating data

Mode of shaking	Orbital, Ø 25 mm or 50 mm, according to version
Shaking speed	40 to 400 rpm
Accuracy	max. ±1% of final value
Setting display	Alphanumeric key pad, LCD
Timing	0:01 to 98:59 hours; continuous action at 99:00 hours
Memory function	Restart after power failure
Alarms	visual
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity

### Data output

Analogue	For speed, 9-pin SUB-D socket, 0 to 10 V or 0 to 20 mA resp. 4 to 20 mA (modification by technical service)
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### Ordering information

CERTOMAT® S II version with  
25 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8862532</b>	<b>14-559-190</b>

115 V|60 Hz

CERTOMAT® S II|25 mm

CERTOMAT® S II version with  
50 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8862631</b>	<b>14-559-191</b>

115 V|60 Hz

CERTOMAT® S II|50 mm

All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.



## Certomat® RM

### The high-performance shaker

The CERTOMAT® RM shows all the features of the CERTOMAT® S II with one important technical detail in addition: adjustable mass compensation.

While all other shakers have to use a fixed weight to compensate imbalances caused by the movement of mass, the CERTOMAT® RM has a compensation weight that can be moved along an axis to the position optimally counteracting imbalance.

This patented feature makes it possible to run even high loads at maximum speed without increased vibration and running noise. Setting of the compensation weight is done from the outside of the housing with a simple tool.

## Benefits

- high load | high speed applications
- adjustable mass compensation

## Ordering information

CERTOMAT® RM version with  
25 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8862338</b>	<b>14-559-189</b>

115 V|60 Hz  
CERTOMAT® RM|25 mm

CERTOMAT® RM version with  
50 mm orbit

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8862435</b>	<b>14-559-189</b>

115 V|60 Hz  
CERTOMAT® RM|50 mm

All instruments are delivered without tray  
and other accessories.

For growing cells or mixing liquids, a tray is  
needed together with additional accessories to  
hold shaking flasks, separation funnels or tubes.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 511 × 160 × 545 mm
Weight (without tray)	46 kg
Housing	Steel construction
Drive mechanism	Brushless motor, triple eccentric drive with adjustable mass compensation
Trays, type size	Type E EU (420 × 420 mm) Type F FU (800 × 420 mm)
Tray fixation	Simple snap mechanism
Max. load	>20 kg, mass compensation adjustable according to load
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Amperage	1.6 A at 115 V
Fuses	2 × T2 A at 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Operating data

Mode of shaking	Orbital, Ø 25 mm or 50 mm, according to version
Shaking speed	40 to 400 U/min
Accuracy	max. ±1% of final value
Setting display	Alphanumeric key pad, LCD
Timing	0:01 to 98:59 hours; continuous action at 99:00 hours
Memory function	Restart after power failure
Alarms	visual
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity

### Data output

Analogue	For speed, 9-pin SUB-D socket, 0 to 10 V or 0 to 20 mA resp. 4 to 20 mA (modification by technical service)
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## Certomat® R

### The silent long-distance runner

Due to its strong magnetic drive, the CERTOMAT® R is a benchtop shaker with two outstanding features: extremely low running noise and long service life without maintenance.

The CERTOMAT® R is equipped with an acoustic alarm and a memory function for automatic re-start after power failure.

## Benefits

- magnetic drive
- lowest running noise
- extremely durable

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 480 × 100 × 520 mm
Weight (without tray)	40 kg
Housing	Steel construction
Drive mechanism	Magnetic, triple eccentric drive
Trays, type size	Type E EU (420 × 420 mm) Type F FU (800 × 420 mm)
Tray fixation	Fixing lever
Max. load	20 kg
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Amperage	1.2 A at 115 V
Fuses	2 × T2.5 A at 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Ordering information

CERTOMAT® R

**Sartorius Stedim**  
**Order No.**

**BBI-8860130**

115 V|60 Hz

**Fisher Scientific**  
**Order No.**



All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.

### Operating data

Mode of shaking	Orbital, Ø 25 mm
Shaking speed	40 to 350 rpm
Accuracy	max. ±5% of final value
Setting display	± Keys, LED
Memory function	Restart after power failure
Alarms	acoustic
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity



## Certomat® U

### The convertible benchtop shaker

The CERTOMAT® U is identical to the CERTOMAT® R in all features – but its movement can be converted from orbital to longitudinal shaking.

While orbital shaking is preferred for cultivating all kinds of cells, linear shaking can be used for destaining of electrophoresis gels, for extraction purposes and others.

This makes the CERTOMAT® U an extremely flexible tool for lab work.

## Benefits

- switches from orbital to linear shaking
- magnetic drive
- low noise|long service life

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 480 × 130 × 520 mm
Weight (without tray)	52 kg
Housing	Steel construction
Drive mechanism	Magnetic, triple eccentric drive
Trays, type size	Type E EU (420 × 420 mm) Type F FU (800 × 420 mm)
Tray fixation	Fixing lever
Max. load	20 kg
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Amperage	1.2 A at 115 V
Fuses	2 × T2.5 A at 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Ordering information

CERTOMAT® U

**Sartorius Stedim**  
**Order No.**

**BBI-8860238**

115 V|60 Hz

**Fisher Scientific**  
**Order No.**



All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.

### Operating data

Mode of shaking	Orbital, Ø 25 mm, or linear, convertible
Shaking speed	40 to 350 rpm orbital, 40 – 200 rpm longitudinal
Accuracy	max. ±5% of final value
Setting display	± Keys, LED
Memory function	Restart after power failure
Alarms	acoustic
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity





## Certomat® H|HK Incubation hoods for benchtop shakers

The incubation hoods provide a temperature-controlled environment for cultivation of cells on benchtop shakers.

While the CERTOMAT® H is used for conditions above ambient temperature, the CERTOMAT® HK can be attached to an external cooling system in order to reach incubation temperatures down to +10°C. Temperature distribution is controlled by a strong airflow.

CERTOMAT® H and HK incubation hoods are compatible with all CERTOMAT® benchtop shakers using trays of the E/EU series.

### Benefits

- incubation hoods for all benchtop shakers
- for temperatures above or below ambient
- memory function

## Ordering information

CERTOMAT® H  
Incubation Hood with heater:

<b>Sartorius Stedim</b> <b>Order No.</b> <b>BBI-8863202</b>	<b>Fisher Scientific</b> <b>Order No.</b> <b>14-559-192</b>
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115 V|60 Hz

CERTOMAT® HK  
Incubation Hood with heater and  
heat exchanger:

<b>Sartorius Stedim</b> <b>Order No.</b> <b>BBI-8863245</b>	<b>Fisher Scientific</b> <b>Order No.</b> <b>14-559-193</b>
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115 V|60 Hz

All units are delivered without further accessories.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 668 × 426 × 662 mm (CERTOMAT® H) W × H × D = 668 × 517 × 662 mm (CERTOMAT® HK)
Incubation chamber	W × H × D = 520 × 420 × 600 mm
Weight	Approx. 20 kg
Housing	Plexiglass
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz, adjustable
Heating capacity	500 W
Power supply	5 A at 115 V
Fuses	6.3 V at 115 V
Interference	Class N according to EN 55014-2

### Operating data

Incubation temperature	RT +8°C to +60°C (CERTOMAT® H) +10°C to +60°C (CERTOMAT® HK), with external cooling
Accuracy	37°C +/- 2°C, 60°C +/- 5°C
Setting/display	LED
Memory function	Restart after power failure
Alarms	visual
Air circulation	> 80 m <sup>3</sup> /h
Ambient temperature	+10°C to +35°C
Humidity	Avoid extreme humidity



## Certomat® IS

### The benchtop incubation shaker

## Benefits

- benchtop unit with small footprint
- optional integrated cooling
- fully programmable

The CERTOMAT® IS is a benchtop incubation shaker with compact design and an integrated heating plus optional cooling system. Depending on the application, the user has a choice of two different shaking orbits. Incubation parameters can be set by the user and stored in five programs of four steps and one pre-step each.

Safety features include visual and acoustic alarms, a memory function for automatic re-start after power failure, and recording of the time and duration of interruptions. An integrated spill tray prevents any liquid media from broken flasks from entering the mechanical system.

Due to its small footprint, the CERTOMAT® IS fits well even into crowded laboratories

## Ordering information

CERTOMAT® IS version with circulation/  
heating (UH)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8864837</b>	<b>14-559-198</b>
115 V 60 Hz, CERTOMAT® IS/25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8864934</b>	<b>14-559-200</b>
115 V 60 Hz, CERTOMAT® IS/50 mm	

CERTOMAT® IS version with circulation/  
heating/cooling (UHK)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8864853</b>	<b>14-559-199</b>
115 V 60 Hz, CERTOMAT® IS/25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8864953</b>	<b>14-559-201</b>
115 V 60 Hz, CERTOMAT® IS/50 mm	

All instruments are delivered without tray and  
other accessories.

For growing cells or mixing liquids, a tray is  
needed together with additional accessories to  
hold shaking flasks, separation funnels or tubes.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 540 × 560 × 685 mm
Incubation chamber	W × H × D = 505 × 370 × 510 mm
Weight (without tray)	65 kg
Housing	Steel construction, with plexiglass lid
Drive mechanism	Brushless motor, triple eccentric drive
Trays, type/size	Typ E/EU (420 × 420 mm)
Tray fixation	Simple snap mechanism
Max. load	15 kg
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Heating capacity	650 W
Cooling capacity	300 W
Fuses	2 × T10A for 115 V
Interference	According to DIN EN 55022 and DIN EN 6100

### Operating data

Mode of shaking	orbital, Ø 25 mm or 50 mm, according to version
Shaking speed	40 to 400 rpm
accuracy	max. ± 1% of final value
Incubation temperature	RT +8°C to +60°C (UH)   RT -10°C to +60°C (UHK)
setting/display	Alphanumeric key pad, LCD
Programming	Up to 5 programs with 4 steps and 1 pre-step, with cycling
Programmable parameters	Speed, time, temperature
Timing	0:01 to 98:59 hours; continuous action at 99:00 hours
Memory function	Restart after power failure
Alarms	Acoustic and visual
Air circulation	Approx. 180 m <sup>3</sup> /h
Ambient temperature	+10°C to +35°C (UH)   +10°C to +30°C (UHK)
Humidity	Avoid extreme humidity

### Data output

Analogue	for speed and temperature, 9-pin SUB-D socket, 0 to 10 V or 0 to 20 mA resp. 4 to 20 mA (modification by technical service)
Digital	for speed and temperature, printout via RS 232 interface, initiated by pressing "START" button during action, and for service functions
Collective alarm	Potential-free contact (closer), max. 230 VAC (0,5 A Ohm load) via SUB-D socket "Analog Out" Pin 4/9



## Certomat® BS-1

### The stackable incubation shaker

#### Benefits

- stacks three units high with full speed
- fully programmable
- capacity 6 + 5 L flasks

Three CERTOMAT® BS-1 incubation shaking cabinets can be stacked up and run independently each on its own program. Due to the adjustable mass compensation system there is no need to reduce shaking speed of the upper units – all units can be run with full load at top speed.

Temperature, shaking speed and illumination can be defined and stored in five programs with four steps and one pre-step each. Safety features include visual and acoustic alarms, a memory function for automatic re-start after power failure, and recording of the time and duration of interruptions. An integrated spill tray prevents any liquid media from broken flasks from entering the mechanical system.

The CERTOMAT® BS-1 is available with a choice of two shaking amplitudes and with or without integrated cooling. Further optional accessories are an illumination unit, a support frame and an additional incubation grid that can be mounted in the upper part of the cabinet. The interior of the incubation cabinet is completely made of polished stainless steel. IQ/OQ documents for use of the CERTOMAT® BS-1 in validated processes are available.

## Ordering information

CERTOMAT® BS-1 version with circulation/heating (UH)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865035</b>	<b>14-559-202</b>
115 V 60 Hz, CERTOMAT® BS-1/25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865132</b>	<b>14-559-203</b>
115 V 60 Hz, CERTOMAT® BS-1/50 mm	

CERTOMAT® BS-1 version with circulation/heating/cooling (UHK)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865230</b>	<b>14-559-204</b>
115 V 60 Hz, CERTOMAT® BS-1/25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865337</b>	<b>14-559-205</b>
115 V 60 Hz, CERTOMAT® BS-1/50 mm	

All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 1150 × 720 × 770 mm
Incubation chamber	W × H × D = 890 × 495 × 650 mm
Weight (without tray)	198 kg
Housing	Steel construction, stainless steel interior
Drive mechanism	Brushless motor, triple eccentric drive with adjustable mass compensation
Trays, type/size	Type E/EU (420 × 420), Type F/FU (800 × 420 mm)
Tray fixation	Simple snap mechanism
Max. load	20 kg, mass compensation according to load
Stacking	Up to 3 units, without speed reduction
Protection	IP21

### Electrical specifications

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Heating capacity	650 W
Cooling capacity	500 W
Illumination	90 W (5 × 18 W), max. 2.500 Lux
Fuses	2 × T10 A for 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Operating specifications

Mode of shaking	orbital, Ø 25 mm oder 50 mm, according to version
Shaking speed	40 to 400 rpm
Accuracy	max. ±1% of final value
Incubation temperature	RT +8°C to +70°C (UH)   RT -10°C to +70°C (UHK)
Setting/display	Alphanumeric key pad, LCD
Programming	Up to 5 programs with 4 steps and 1 pre-step, with cycling
Programmable parameters	Speed, time, temperature, illumination
Timing	0:01 to 98:59 hours; continuous action at 99:00 hours
Memory function	Restart after power failure
Alarms	Acoustic and visual
Air circulation	Approx. 180 m3/h
Ambient temperature	+10°C to +35°C (UH)   +10°C to +30°C (UHK)
Humidity	Avoid extreme humidity

### Data output

Analogue	For speed and temperature, 9-pin SUB-D socket, 0 to 10 V or 0 to 20 mA resp. 4 to 20 mA (modification by technical service)
Digital	For speed and temperature, printout via RS232 interface, initiated by pressing "START" button during action, and for service functions
Collective alarm	Potential-free contact (closer), max. 230 VAC (0,5 A Ohm load) via SUB-D socket "Analog Out" Pin 4/9



## Certomat® BS-T

### The top-loading incubation shaker

The CERTOMAT® BS-T is a top-loading, floor-standing incubation cabinet.

Many of its features, such as programming, alarm management, integrated cooling and optional illumination are the same as for the CERTOMAT® BS-1. The interior of the incubation cabinet is completely made of polished stainless steel.

With a maximum capacity of six 6 Liter flasks, the CERTOMAT® BS-T is used also for small scale production of biopharmaceutical target substances.

## Benefits

- top-loading unit
- fully programmable
- capacity 6 + 6 L flasks



## Ordering information

CERTOMAT® BS-T version with circulation/heating (UH)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865434</b>	<b>14-559-206</b>
115 V 60 Hz, CERTOMAT® BS-T 25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865531</b>	<b>14-559-207</b>
115 V 60 Hz, CERTOMAT® BS-T 50 mm	

CERTOMAT® BS-T version with circulation/heating/cooling (UHK)

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865639</b>	<b>14-559-208</b>
115 V 60 Hz, CERTOMAT® BS-T 25 mm	

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8865736</b>	<b>14-559-209</b>
115 V 60 Hz, CERTOMAT® BS-T 50 mm	

All instruments are delivered without tray and other accessories.

For growing cells or mixing liquids, a tray is needed together with additional accessories to hold shaking flasks, separation funnels or tubes.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 1150 × 760 × 750 mm
Incubation chamber	W × H × D = 890 × 535 × 595 mm
Weight (without tray)	171 kg
Housing	Steel construction, stainless steel interior
Drive mechanism	Brushless motor, triple eccentric drive
Trays, type size	Type E EU (420 × 420 mm), Type F FU (800 × 420 mm)
Tray fixation	Simple snap mechanism
Max. load	20 kg
Protection	IP21

### Electrical specifications

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Heating capacity	650 W
Cooling capacity	500 W
Illumination	90 W (5 × 18 W), max. 2.500 Lux
Fuses	2 × T10A for 115 V
Interference	According to DIN EN 55022 and DIN EN 61000

### Operating specifications

Mode of shaking	Orbital, Ø 25 mm or 50 mm, according to version
Shaking speed	40 to 400 rpm
Accuracy	max. ±1% of final value
Incubation temperature	RT +8°C to +70°C (UH)   RT -10°C to +70°C (UHK)
Setting display	Alphanumeric key pad, LCD, Programming Up to 5 programs with 4 steps and 1 pre-step, with cycling
Programmable parameters	Speed, time, temperature, illumination
Timing	0:01 to 98:59 hours; continuous action at 99:00 hours
Memory function	Restart after power failure
Alarms	Acoustic and visual
Air circulation	Approx. 180 m <sup>3</sup> /h
Ambient temperature	+10°C to +35°C UH   +10°C to +30°C UHK
Humidity	Avoid extreme humidity

### Data output

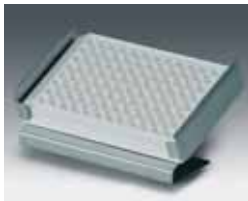


Analogue	For speed, 9-pin SUB-D socket, 0 to 10 V or 0 to 20 mA resp. 4 to 20 mA (modification by technical service)
Digital	for speed and temperature, printout via RS 232 interface, initiated by pressing „START“ button during action, and for service functions
Collective alarm	Potential-free contact (closer), max. 230 VAC (0,5 A Ohm load) via SUB-D socket „Analog Out“ Pin 4/9




# Accessories

	Page	CERTOMAT® MO II	CERTOMAT® S II	CERTOMAT® RM	CERTOMAT® R	CERTOMAT® U	CERTOMAT® H HK	CERTOMAT® IS	CERTOMAT® BS-1	CERTOMAT® BS-T
01  Universal tray type EU	25	■	■	■	■	■	■	■		
02  Universal tray type FU	25		■	■	■	■			■	■
03  Type E tray with steel clamps	25	■	■	■	■	■	■	■		
04  Type F tray with steel clamps	25		■	■	■	■			■	■
05  Universal Mounting system: Basic element type B-2 for EU tray	25	■	■	■	■	■	■	■		
06  Universal Mounting system: Basic element type B-3 for FU tray	25		■	■	■	■			■	■
07  Universal clamping rod type U for basic elements B-2 and B-3	25	■	■	■	■	■	■	■	■	■
08  Stainless steel clamps for Erlenmeyer and Fernbach flasks	26	■	■	■	■	■	■	■	■	■
09  Plastic clamps for Erlenmeyer flasks	26	■	■	■	■	■	■	■	■	■
10  Hinged racks for test tubes	26	■	■	■	■	■	■	■	■	■
11  Hinged racks for centrifuge tubes	26	■	■	■	■	■	■	■	■	■
12  Stainless steel holders for mikrotiter plates	27	■	■	■	■	■	■	■	■	■
13  Sticky tape for universal trays	27	■	■	■	■	■	■	■	■	■
14  Anti-skid layer for universal trays	27	■	■	■	■	■	■	■	■	■
15  Shaking flasks, DURAN, Erlenmeyer type, with 3 baffles, straight rim	27	■	■	■	■	■	■	■	■	■
16  Shaking flasks, DURAN, Erlenmeyer type, with 3 baffles, straight rim, conn. GL 14	27	■	■	■	■	■	■	■	■	■
17  Caps for Erlenmeyer flasks, straight rim	28	■	■	■	■	■	■	■	■	■
18  Shaking flasks, DURAN, Erlenmeyer type, with 3 baffles, narrow neck for plugs	28	■	■	■	■	■	■	■	■	■
19  Illumination unit for CERTOMAT® BS-1	28								■	
20  Illumination unit for CERTOMAT® BS-T	28									■
21  Grid for Petri dishes, stainless steel, adjustable height, for CERTOMAT® BS-1	28								■	
22  Darkening plates, stainless steel, for CERTOMAT® BS-1	28								■	
23  Support frame, welded steel construction, for CERTOMAT® BS-1/BS-T	28								■	■
24  Installation kit for reference thermometer Pt100	28								■	■

	Sartorius Stedim Order No.	Fisher Scientific Order No.	Description
02  	BBI-8853002 BBI-8853037	14-559-126 14-559-127	<b>Universal tray to be completed with clamps, racks or mounting system</b> Type EU (420×420 mm) Type FU (800×420 mm)
03  	BBI-8853533 BBI-8853568 BBI-8853584 BBI-8853606	14-559-138 14-559-139 14-559-140 14-559-141	<b>Tray type E (420×420 mm) equipped with stainless steel clamps for Erlenmeyer flasks</b> 39 clamps for flasks 100 ml 20 clamps for flasks 250 ml 14 clamps for flasks 500 ml 9 clamps for flasks 1,000 ml
	BBI-8853738 BBI-8853762 BBI-8853789 BBI-8853800	14-559-145 14-559-146 14-559-147 14-559-148	<b>Tray type F (800×420 mm) equipped with stainless steel clamps for Erlenmeyer flasks</b> 74 clamps for flasks 100 ml 40 clamps for flasks 250 ml 26 clamps for flasks 500 ml 15 clamps for flasks 1,000 ml
06  	BBI-8854238 BBI-8854246 BBI-8854254	14-559-149 14-559-150 14-559-151	<b>Universal mounting system</b> Basic element type B-2 for tray EU Basic element B-3 for tray FU Clamping rod, type U for mounting systems B-2 and B-3
07  			

	<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
08			
	BBI-8854505	14-559-153	<b>Stainless steel clamps for Erlenmeyer and Fernbach flasks</b> (maximum number of clamps for tray type EU/type FU) for flasks 25 ml (max. 49/98) for flasks 50 ml (max. 48/96) for flasks 100 ml (max. 24/48) for flasks 250 ml (max. 17/39) for flasks 500 ml (max. 12/26) for flasks 1,000 ml (max. 8/17) for flasks 2,000 ml (max. 4/9) for flasks 3,000 ml (max. 4/8) for flasks 5,000 ml (max. 2/6)
	BBI-8854513	14-559-154	
	BBI-8854521	14-559-155	
	BBI-8854556	14-559-156	
	BBI-8854572	14-559-158	
	BBI-8854599	14-559-160	
	BBI-8854610	14-559-162	
	BBI-8854629	14-559-163	
	BBI-8854637	14-559-164	
	BBI-8854564	14-559-157	
	BBI-8854600	14-559-161	for Fernbach flasks 1,800 ml (max. 1/6)
	BBI-8854640	14-559-165	for Fernbach flasks 2,800 ml (max. 1/6)
09			
	BBI-8854700	14-559-166	<b>Plastic clamps reinforced with glass fibre</b> (maximum number of clamps for tray type EU/type FU) for flasks 100 ml (max. 24/48) for flasks 250 ml (max. 18/39) for flasks 500 ml (max. 12/26) for flasks 1,000 ml (max. 8/17)
	BBI-8854711	14-559-167	
	BBI-8854722	14-559-168	
	BBI-8854733	14-559-169	
10			
	BBI-8853134	14-559-130	<b>Hinged racks for test tubes</b> (4 racks max. on tray EU, 8 racks max. on tray FU) for 64 tubes Ø 14 mm for 42 tubes Ø 16 mm for 36 tubes Ø 18 mm for 33 tubes Ø 20 mm for 18 tubes Ø 25 mm for 16 tubes Ø 30 mm
	BBI-8853142	14-559-131	
	BBI-8853150	14-559-132	
	BBI-8853169	14-559-133	
	BBI-8853185	14-559-135	
	BBI-8853177	14-559-134	
11			
	BBI-8853088	14-559-128	<b>Hinged racks for centrifugation tubes</b> (4 racks max. on tray EU, 8 racks max. on tray FU) for 42 tubes Ø 16 mm for 36 tubes Ø 18 mm for 33 tubes Ø 20 mm for 16 tubes Ø 30 mm
	BBI-8853096	14-559-129	
	BBI-8853193	14-559-136	
	BBI-8853240	14-559-137	

	Sartorius Stedim Order No.	Fisher Scientific Order No.	Description	
12		BBI-8850321	14-559-125	<b>Holders for microtiter plates, stainless steel</b> for 1 standard 96-well plate or deepwell plate standard plates: max. 12 holders on EU tray, 21 holders on FU tray deepwell plates: max. 9 holders on EU tray, 18 holders on FU tray
13		BBI-8864497 BBI-8860419	14-559-197 ■■■■	<b>Sticky tape for universal trays</b> Standard, width 30 mm, roll of 50 m Premium, width 30 mm, roll of 10 m, for repeated use
		BBI-8864470	14-559-195	<b>Anti-skid layer</b> 380×450 mm, for individual cut
15		BBI-8861005 BBI-8861013 BBI-8861021 BBI-8861022	14-559-176 14-559-177 14-559-178 14-559-179	<b>Shaking flasks DURAN, Erlenmeyer type, 3 baffles at 120°, straight rim</b> Erlenmeyer flasks 300 ml, pack of 10 Erlenmeyer flasks 500 ml, pack of 10 Erlenmeyer flasks 1,000 ml, pack of 10 Erlenmeyer flasks 2,000 ml, pack of 10

	<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
16			
	BBI-8861064	14-559-180	<b>Shaking flasks, DURAN, Erlenmeyer type, 3 baffles at 120°, straight rim, connector GL 14</b> Erlenmeyer flasks 300 ml, pack of 10 Erlenmeyer flasks 500 ml, pack of 10 Erlenmeyer flasks 1,000 ml, pack of 10
	BBI-8861072	14-559-181	
	BBI-8861080	14-559-182	
	BBI-8861099	14-559-183	<b>Caps for Erlenmeyer flasks, straight rim</b> Cap Aluminium, pack of 10 Cap Stainless steel, pack of 10
	BBI-8861102	14-559-184	
18			
	BBI-8860998	14-559-175	<b>Shaking flasks, DURAN, Erlenmeyer type, 3 baffles at 120°, narrow neck for plug</b> Erlenmeyer flasks 500 ml, pack of 10
19		BBI-8861455	<b>Illumination unit for CERTOMAT® BS-1, 5×18 W,</b> individually activated, programmable, only in combination with cooling
20		BBI-8861463	<b>Illumination unit for CERTOMAT® BS-T, 5×18 W,</b> individually activated, programmable, only in combination with cooling
	BBI-8861447	14-559-187	<b>Grid for Petri dishes,</b> stainless steel, adjustable height, for use in CERTOMAT® BS-1
	BBI-8864489	14-559-196	<b>Support frame (for two CERTOMAT® BS-1),</b> welded sectional frame construction, height-adjustable feet
	BBI-8854416	14-559-152	<b>Installation set for reference thermometer (Pt100),</b> for CERTOMAT® BS-1

## Selection chart homogenizers

	Bacteria	Yeast	Mammalian cells	Tissues, plant cells	Bones, cartilage	Minerals, pigments	Page
Mikro-Dismembrator	+	+	+	+	+	+	32
LABSONIC®	+	+	+	-	-	-	36
Potter S	-	-	+	+	-	-	44
Hand Homogenizers	-	-	+	+	-	-	48





RPM 1000

7	8	9	0	↑
4	5	6	.	↓
1	2	3	C	Enter
				Start Stop

# Mikro-Dismembrator S

## The high-performance laboratory ball mill



## Benefits

- ball mill for solid or frozen samples
- highest efficiency by top speed
- electronic control of speed and time

The Mikro-Dismembrator S is the most efficient instrument for homogenization of solid or frozen samples. Due to the high shaking frequency of  $3000 \text{ min}^{-1}$ , solid samples such as bone or deep-frozen tissue, e.g. from biopsies, are disintegrated to fine powder rapidly, often within less than a minute.

This effectively prevents decomposition of target molecules such as DNA, RNA or proteins by endogenous enzymes. Reproducibility of the process is guaranteed by digital control of shaking speed and time.

The sister instrument, Mikro-Dismembrator U, has a maximum shaking frequency of  $2000 \text{ min}^{-1}$  and is used for less stringent applications. Both units are compatible with a large range of accessories such as shaking flasks, grinding balls or glass beads.

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 297 × 259 × 205 mm
Weight	19 kg
Housing	Steel construction
Protection	IP21

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz, adjustable
Power	Approx. 100 W (S) or 75 W (U)
Fuses	2 × T1.6A at 115 V
Interference	Class N according to EN 55014-2

### Operating data

Shaking amplitude	16 mm (constant)
Shaking frequency Mikro-Dismembrator S	100 to 2.600 1/min (permanent) 100 to 3.000 1/min (intermittent)
Shaking frequency Mikro-Dismembrator U	100 to 2.000 1/min
Accuracy	max. ±3% of final value
Setting / display	Alphanumeric key pad, LCD
Timing	0:01 to 98:59 min, continuous action at 99:00 min
Ambient temperature	+10°C to +35°C
Humidity	Avoid extreme humidity

### Ordering information

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>

<b>BBI-8531609</b>	<b>14-559-018</b>
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Mikro-Dismembrator S  
115 V|60 Hz, convertible

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>

<b>BBI-8531730</b>	<b>14-559-019</b>
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Mikro-Dismembrator U  
115 V|60 Hz

#### Accessories

All units are delivered without shaking flasks and other accessories.

Shaking flasks and grinding balls or glass beads are required for the grinding process.

# Accessories

	<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
01  	BBI-8531803	14-559-020	<b>Shaking flasks made of stainless steel 1.4301</b> Shaking flask, stainless steel 1.4301, volume approx. 3 ml, with PTFE gasket and cap
	BBI-8531811	14-559-021	Shaking flask, stainless steel 1.4301, volume approx. 5 ml, with PTFE gasket and cap
	BBI-8531820	14-559-022	Shaking flask, stainless steel 1.4301, volume approx. 7 ml, with PTFE gasket and cap
02  	BBI-8531838	14-559-023	<b>Shaking flasks made of PTFE</b> Shaking flask, PTFE, volume approx. 3 ml, with cap
	BBI-8531846	14-559-024	Shaking flask, PTFE, volume approx. 5 ml, with cap
	BBI-8531854	14-559-025	Shaking flask, PTFE, volume approx. 7 ml, with cap
	BBI-8531862	14-559-026	Shaking flask, PTFE, volume approx. 20 ml, with cap Holder ( <a href="#">Sartorius Stedim Order No. 8531897</a>   <a href="#">Fisher Scientific Order No. 14-559-027</a> ) is required for using this shaking flask!
	BBI-8531943	14-559-031	<b>Shaking flasks made of PTFE</b> Shaking flask, PTFE, volume approx. 3 ml, with screw cap
	BBI-8531935	14-559-030	Shaking flask, PTFE, volume approx. 5 ml, with screw cap
	BBI-8531927	14-559-029	Shaking flask, PTFE, volume approx. 7 ml, with screw cap
	BBI-8531951	14-559-032	Shaking flask, PTFE, volume approx. 20 ml, with screw cap Holder ( <a href="#">Sartorius Stedim Order No. 8531897</a>   <a href="#">Fisher Scientific Order No. 14-559-027</a> ) is required for using this shaking flask!
03  	BBI-8531889	■■■■	<b>Containers for disposable tubes, holder</b> Container for 3 disposable test tubes 2.2 ml Ø 10.8×37 mm, for instance Sarstedt no. 72.608 Holder ( <a href="#">Sartorius Stedim Order No. 8531897</a>   <a href="#">Fisher Scientific Order No. 14-559-027</a> ) is required for using this shaking flask!
	BBI-8531960	■■■■	Container for 4 cryotubes Holder ( <a href="#">Sartorius Stedim Order No. 8531897</a>   <a href="#">Fisher Scientific Order No. 14-559-027</a> ) is required for using this shaking flask!
	BBI-8531897	14-559-027	Holder for shaking flask 20 ml ( <a href="#">Sartorius Stedim Order No. 8531951</a>   <a href="#">Fisher Scientific Order No. 14-559-032</a> ) and for the containers for disposable tubes ( <a href="#">Sartorius Stedim Order No. 8531889</a> , <a href="#">8531960</a> and <a href="#">8532001</a>   <a href="#">Fisher Scientific Order No. ■■■■, ■■■■ and 14-559-033</a> )
	BBI-8532001	14-559-033	Container for 4 cryotubes (Nalge 5011-0012) Holder ( <a href="#">Sartorius Stedim Order No. 8531897</a>   <a href="#">Fisher Scientific Order No. 14-559-027</a> ) is required for using this shaking flask!
	BBI-8532010	14-559-034	Adapters for cryotubes ( <a href="#">Sartorius Stedim Order No. BBI-8532001</a>   <a href="#">Fisher Scientific Order No. 14-559-033</a> ) pack of 8 (as spare parts)
	04  	BBI-8531900	14-559-028
BBI-8531986		■■■■	Adapter set for using Mikro-Dismembrator U/S flasks with the Mikro-Dismembrator II, for shaking flasks 3 ml, 5 ml, 7 ml

05|



Sartorius Stedim Order No.	Fisher Scientific Order No.	Description
		<b>Grinding balls</b>
BBI-8547505	14-559-110	Made of Brazilian agate Grinding ball made of Brazilian agate, Ø 10 mm, weight 1.4 g, package with 10 pieces
BBI-8547602	14-559-111	Made of PTFE, with steel core Grinding ball made of PTFE with steel core, Ø 12 mm, weight 2 g, package of 2 pieces
BBI-8546606	14-559-101	Made of chromium steel Grinding ball made of chromium steel, specific weight 7.85 g/ml, Ø 3 mm, package of 100 pieces
BBI-8546703	14-559-102	Grinding ball made of chromium steel, specific weight 7.85 g/ml, Ø 5 mm, package of 100 pieces
BBI-8546916	14-559-104	Grinding ball made of chromium steel, specific weight 7.85 g/ml, Ø 9 mm, package of 10 pieces
BBI-8546800	14-559-103	Grinding ball made of chromium steel, specific weight 7.85 g/ml, Ø 10 mm, package of 10 pieces
BBI-8547009	14-559-105	Made of Tungsten carbide Grinding ball made of Tungsten carbide, specific weight 14.5 g/ml, Ø 1mm, 1 piece
BBI-8547106	14-559-106	Grinding ball made of Tungsten carbide, specific weight 14.5 g/ml, Ø 3 mm, 1 piece
BBI-8547203	14-559-107	Grinding ball made of Tungsten carbide, specific weight 14.5 g/ml, Ø 5 mm, 1 piece
BBI-8547408	14-559-109	Grinding ball made of Tungsten carbide, specific weight 14.5 g/ml, Ø 7 mm, 1 piece
BBI-8547300	14-559-108	Grinding ball made of Tungsten carbide, specific weight 14.5 g/ml, Ø 10 mm, 1 piece
		<b>Glass beads</b>
BBI-8541400	14-559-081	Glass beads Ø 0.10–0.11 mm, bottle, approx. 570 ml
BBI-8541507	14-559-082	Glass beads Ø 0.17–0.18 mm, bottle, approx. 570 ml
BBI-8541604	14-559-083	Glass beads Ø 0.25–0.30 mm, bottle, approx. 570 ml
BBI-8541701	14-559-084	Glass beads Ø 0.40–0.60 mm, bottle, approx. 570 ml
BBI-8541809	14-559-085	Glass beads Ø ca. 1 mm, bottle, approx. 570 ml



## LABSONIC® M

### The ultrasonic homogenizer for every application

Ultrasonic homogenizers are widely used for disruption of bacteria, yeast and cultured animal cells. The LABSONIC® M homogenizer is a compact, handheld laboratory instrument that combines all functions in one unit and thus helps saving bench space.

Sonication amplitude can be set between 20 and 100% of the maximum output of 100 W, active time interval between 0,2 and 1,0 sec. This helps to prevent sample denaturation by heating or foaming.

Service life of the titanium sonotrodes is increased by automatic length determination and frequency adjustment. Maximum sample volume is 750 ml in batch mode or up to several liters<sup>2</sup> using a flow cell.

## Benefits

- universal ultrasonic homogenizer
- selectable amplitude and active cycle
- self-optimization of energy output

## Technical specifications

Dimensions	W × H × D = 130 × 180 × 50 mm
Weight	0.75 kg
Line voltage	115 V 60 Hz
Output	100 W (90 W in aqueous media)
Output settings	20% to 100%, continuous
Duty cycle (pulsed operation)	10% to 100%, continuous
Timer	Optional, by external timer
Working frequency	30 kHz according to US Standard
Accuracy	±1 kHz
Max. energy density	125 to 600 W/cm <sup>2</sup> depending on sonotrode
Max. amplitude	125 to 220 μm depending on to sonotrode
Operational stability	Permanent operation, also in air
Fuses	T2A primary (internal)
Protection class protection	I, grounded device IP 40
Interference	According to EN 55011 EN 50082-2
PC-connection	Optional, socket integrated
Ambient temperature	+5°C to +40°C
Humidity	Avoid extreme humidity

## Ordering information

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8535035</b>	<b>14-559-043</b>
LABSONIC® M	
115 V 60 Hz,	

All units are delivered without probes and further accessories.



# Accessories

01|



Sartorius Stedim Order No.	Fisher Scientific Order No.	Description	For sample volume (ml)
<b>Probes made of Titanium, normal length</b>			
BBI-8535612	14-559-059	Probe Ø 0.5 mm, approx. 80 mm long	0.01–0.5
BBI-8535620	14-559-060	Probe Ø 1 mm, approx. 80 mm long	0.1–5
BBI-8535639	14-559-061	Probe Ø 2 mm, approx. 80 mm long	2–50
BBI-8535647	14-559-062	Probe Ø 3 mm, approx. 80 mm long	5–200
BBI-8535655	14-559-063	Probe Ø 7 mm, approx. 80 mm long	20–500
BBI-8535671	14-559-065	Probe Ø 10 mm, approx. 80 mm long	30–750
<b>Probes made of Titanium, double length</b>			
BBI-8535680	14-559-066	Probe Ø 3 mm, approx. 160 mm long	5–200
BBI-8535698	14-559-067	Probe Ø 7 mm, approx. 160 mm long	20–500
BBI-8535710	14-559-069	Probe Ø 10 mm, approx. 160 mm long	30–750

02|



Sartorius Stedim Order No.	Fisher Scientific Order No.	Description
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<b>Accessories for sonication in a flow cell</b>		
BBI-8535663	14-559-064	Probe Ø 7 mm, for flow cell Sartorius Stedim Order No. 8535728   Fisher Scientific Order No. 14-559-070, approx. 80 mm long
BBI-8535701	14-559-068	Probe Ø 7 mm, long form, for flow cell Sartorius Stedim Order No. 8535736   Fisher Scientific Order No. 14-559-071, approx. 160 mm long
BBI-8535728	14-559-070	Flow cell incl. cooling connection, stainless steel 1.4301, autoclavable, incl. quick-fit connector. For operation a probe Sartorius Stedim Order No. 8535663   Fisher Scientific Order No. 14-559-064 is required!
BBI-8535736	14-559-071	Flow cell incl. cooling connection, glass, autoclavable, for sonicating liquids in a closed system. The norm adapter Sartorius Stedim Order No. 8535744   Fisher Scientific Order No. 14-559-072 is needed.
BBI-8535744	14-559-072	Norm adapter for glass flow cell Sartorius Stedim Order No. 8535736   Fisher Scientific Order No. 14-559-071

03|



Timer, for connection to  
LABSONIC® M

<b>Further accessories</b>		
BBI-8535280	14-559-058	Clamp STH-16 (included with LABSONIC® M)
BBI-8535272	14-559-057	Stand ST-16, Ø 16 mm, plate stainless steel 1.4301, rod made of aluminium
BBI-8535779	14-559-073	Timer, for connection to LABSONIC® M
BBI-8535787	■■■■	PC-control, incl. recording of input power, slot-in board for PC, connecting cable and software for Windows 95/98
BBI-8535795	■■■■	PC-control, incl. recording of input power and temperature, slot-in board for PC, connecting cable and software for Windows 95/98
BBI-8535817	14-559-075	Sound dampening chamber SB2 for LABSONIC® M



## LABSONIC® P

### The high-performance ultrasonic homogenizer

The LABSONIC® P homogenizer is designed for higher output up to 400 W and correspondingly for treatment of larger samples. Several liters<sup>2</sup> can be sonicated in batch mode, whereas 10 to 50 L/h can be processed in continuous mode using a flow cell.

Sonication amplitude can be set between 20 and 100% of the maximum output of 400 W, active time interval between 0.2 and 1.0 sec. This helps to prevent sample denaturation by heating or foaming. Service life of the titanium sonotrodes is increased by automatic length determination and frequency adjustment.

The LABSONIC® P is preferably used together with a sound dampening box to protect the user from excess noise.

## Benefits

- sonication of larger samples
- selectable amplitude and active cycle
- self-optimization of energy output

## Technical specifications



Dimensions	W × H × D= 135 × 280 × 95 mm
Weight	8.8 kg
Line voltage	115 V 60 Hz
Output	400 W (300 W in aqueous media)
Output settings	20% to 100%, continuous
Duty cycle (pulsed operation)	10% to 100%, continuous
Timer	Optional, by external timer
Working frequency	24 kHz according to US Standard
Accuracy	±1 kHz
Max. energy density	12 to 600 W/cm <sup>2</sup> depending on sonotrode
Max. amplitude	12 to 260 μm depending on sonotrode
Operational stability	Permanent operation, also in air
Fuses	T2A primary (internal)
Protection class protection	I, grounded device IP 40
Interference	According to EN 55011 EN 50082-2
PC-connection	Optional, socket integrated
Ambient temperature	+5°C to +40°C
Humidity	Avoid extreme humidity

## Ordering information

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8535116</b>	<b>14-559-044</b>
LABSONIC® P	
115 V 60 Hz	

All units are delivered without probes and further accessories.

# Accessories

	<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>	<b>For sample volume (ml)</b>
01   	BBI-8535124	14-559-045	<b>Probes made of Titanium, normal length</b> Probe Ø 3 mm, approx. 100 mm long	5–200
	BBI-8535132	14-559-046	Probe Ø 7 mm, approx. 100 mm long	20–500
	BBI-8535140	14-559-047	Probe Ø 14 mm, approx. 100 mm long	100–2000
	BBI-8535159	14-559-048	Probe Ø 22 mm, approx. 100 mm long	100–2000
	BBI-8535167	14-559-049	Probe Ø 40 mm, approx. 100 mm long	200–4000
02   	BBI-8535175	14-559-050	<b>Accessories for sonication in a flow cell</b> Probe Ø 22 mm, for flow cells Sartorius Stedim Order No. 8535213   Fisher Scientific Order No. 14-559-052, approx. 100 mm long	10–50 l/h
	BBI-8535183	14-559-051	Probe Ø 22 mm, long form, for flow cells Sartorius Stedim Order No. 8535221   Fisher Scientific Order No. 14-559-053, approx. 200 mm long!	10–50 l/h
	BBI-8535213	14-559-052	Flow cell including cooling connection, stainless steel 1.4301, autoclavable, with quick connector For operation a probe Sartorius Stedim Order No. 8535175   Fisher Scientific Order No. 14-559-050 is required!	
	BBI-8535221	14-559-053	Flow cell including cooling connection, glass, autoclavable, for sonicating liquids in a closed system Norm adapter Sartorius Stedim Order No. 8535230   Fisher Scientific Order No. 14-559-054 is required	
	BBI-8535230	14-559-054	Norm adapter for glass flow cell Sartorius Stedim Order No. 8535221   Fisher Scientific Order No. 14-559-053	

03|



Sartorius Stedim Order No.	Fisher Scientific Order No.	Description
BBI-8535272	14-559-057	<b>Further accessories</b> Stand ST-16, Ø 16 mm, rod made of aluminium, plate stainless steel 1.4301
BBI-8535779	14-559-073	Timer, for connection to LABSONIC® P
BBI-8535248	14-559-055	PC-control for LABSONIC® P, including recording of input power, slot-in card for PC, connecting cable and software for Windows 95/98
BBI-8535256	14-559-056	PC-control for LABSONIC® P, including recording of input power and temperature, slot-in card for PC, connecting cable and software for Windows 95/98
BBI-8535809	14-559-074	Sound dampening chamber SB1 for LABSONIC® P



## Potter S Homogenizer

### For gentle cell and tissue disruption

The Potter S homogenizer has been in use in laboratories world-wide for decades and is still going strong. Cell and tissue disruption by shearing forces between the pestle and the wall of the glass cylinder is relatively gentle and even allows the isolation of intact nuclei.

An integrated cooling vessel provides temperature control and at the same time safe fixation of the homogenizer cylinder. Borosilicate glass cylinders are available with ground-in glass pestles or PTFE pestles, maximum sample volume is 60 ml.

## Benefits

- disrupts cells and tissues by shearing
- gentle action
- known world-wide for generations

## Technical specifications

### Mechanical Data

Dimensions	W × H × D = 300 × 850 × 300 mm
Weight	Approx. 12.5 kg
Housing	Steel construction
Base plate	PVC
Drive	DC motor, brushless

### Electrical data

Connection	Class I cold socket, separate cable approx. 3 m
Protection class	I
Line voltage	115 V 60 Hz
Amperage	0.6 A at 115 V 60 Hz
Fuses	M 1.3 A at 115 V
Interference	Class B according to EN 55014

### Operating data

Speed	150 to 1500 rpm
Accuracy	max. ±3% of final value
Setting display	Potentiometer, LED
Maximum amplitude	170 mm
Ambient temperature	+10°C to +60°C
Humidity	Avoid extreme humidity

### Ordering information

Potter S, including cooling vessel and one set of clamping rings

<b>Sartorius Stedim</b>	<b>Fisher Scientific</b>
<b>Order No.</b>	<b>Order No.</b>
<b>BBI-8533032</b>	<b>14-559-036</b>
115 V 60 Hz	

#### Accessories:

For homogenization complete vessels made of borosilicate glass or homogenizer cylinders and the appropriate PTFE plungers are needed. Complete vessels consist of a glass cylinder and a glass plunger ground to match the cylinder.

For this reason, these components are labelled with an individual number so that they can be properly matched by the user.

All cylinders have a volume scale.

Cylinders and vessels from 2 to 15 ml have a gap of approx. 0.045–0.065 mm, the larger ones have a larger gap of approx. 0.095–0.115 mm.



# Accessories

01|



Sartorius Stedim Order No.	Fisher Scientific Order No.	Description
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Vessels made of borosilicate glass, with latticed notches, complete,  
cylinder with ground-in glass plunger

BBI-8540756	14-559-077	Homogenizer vessel 2 ml, with latticed notches
BBI-8540705	14-559-076	Homogenizer vessel 5 ml, with latticed notches
BBI-8540802	14-559-078	Homogenizer vessel 15 ml, with latticed notches
BBI-8540900	14-559-079	Homogenizer vessel 30 ml, with latticed notches
BBI-8541000	14-559-080	Homogenizer vessel 60 ml, with latticed notches

02|



Vessels made of borosilicate glass, without latticed notches, complete,  
cylinder with ground-in glass plunger

BBI-8541957	14-559-087	Homogenizer vessel 2 ml, without latticed notches
BBI-8541906	14-559-086	Homogenizer vessel 5 ml, without latticed notches
BBI-8542007	14-559-088	Homogenizer vessel 15 ml, without latticed notches
BBI-8542104	14-559-089	Homogenizer vessel 30 ml, without latticed notches
BBI-8542201	14-559-090	Homogenizer vessel 60 ml, without latticed notches

03|



<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
<b>Cylinders made of borosilicate glass, for plungers made of PTFE</b>		
BBI-8542252	14-559-091	Homogenizer cylinder 2 ml, for plungers made of PTFE
BBI-8542309	14-559-092	Homogenizer cylinder 5 ml, for plungers made of PTFE
BBI-8542406	14-559-093	Homogenizer cylinder 15 ml, for plungers made of PTFE
BBI-8542503	14-559-094	Homogenizer cylinder 30 ml, for plungers made of PTFE
BBI-8542600	14-559-095	Homogenizer cylinder 60 ml, for plungers made of PTFE
<b>Plungers made of PTFE, including shaft made of stainless steel</b>		
BBI-8542651	14-559-096	Plunger made of PTFE 2 ml, for cylinder <a href="#">Sartorius Stedim Order No. BBI-8542252</a>   <a href="#">Fisher Scientific Order No. 14-559-091</a>
BBI-8542708	14-559-097	Plunger made of PTFE 5 ml, for cylinder <a href="#">Sartorius Stedim Order No. BBI-8542309</a>   <a href="#">Fisher Scientific Order No. 14-559-092</a>
BBI-8542805	14-559-098	Plunger made of PTFE 15 ml, for cylinder <a href="#">Sartorius Stedim Order No. BBI-8542406</a>   <a href="#">Fisher Scientific Order No. 14-559-093</a>
BBI-8542902	14-559-099	Plunger made of PTFE 30 ml, for cylinder <a href="#">Sartorius Stedim Order No. BBI-8542503</a>   <a href="#">Fisher Scientific Order No. 14-559-094</a>
BBI-8543003	14-559-100	Plunger made of PTFE 60 ml, for cylinder <a href="#">Sartorius Stedim Order No. BBI-8542600</a>   <a href="#">Fisher Scientific Order No. 14-559-095</a>
<b>Special accessories for POTTER S</b>		
BBI-8532206	14-559-035	Storage rack for 10 homogenizer cylinders and plungers or complete vessels
BBI-8533130	14-559-037	Clamping ring for vessels or cylinders 2 ml
BBI-8533148	14-559-038	Clamping ring for vessels or cylinders 5 ml
BBI-8533156	14-559-039	Clamping ring for vessels or cylinders 15 ml
BBI-8533164	14-559-040	Clamping ring for vessels or cylinders 30 ml
BBI-8533172	14-559-041	Clamping ring for vessels or cylinders 60 ml
BBI-8533180	14-559-042	Exchange cooling vessel, glass



## Hand Homogenizers

### For rapid sample preparation

Hand homogenizers of the classical DOUNCE type are widely used for manual sample preparation such as disruption of cells or tissue or for resuspension of sedimented materials. Ground-in glass plungers with loose or tight fit are available together with glass cylinders between 1 ml and 60 ml capacity.

## Benefits

- Dounce type glass homogenizers
- rapid sample preparation
- Choice of gap size

<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
		<b>Hand Homogenizer "DOUNCE"</b> Clearance for version L: 0.05 to 0.07 mm Clearance for version S: 0.01 to 0.03 mm
BBI-8530742	14-559-004	<b>Cylinder</b> made of borosilicate glass 1 ml
BBI-8530734	14-559-003	<b>Cylinder</b> made of borosilicate glass 2 ml
BBI-8530700	14-559-000	<b>Cylinder</b> made of borosilicate glass 5 ml
BBI-8530718	14-559-001	<b>Cylinder</b> made of borosilicate glass 15 ml
BBI-8530726	14-559-002	<b>Cylinder</b> made of borosilicate glass 30 ml
BBI-8530750	14-559-005	<b>Cylinder</b> made of borosilicate glass 60 ml
BBI-8530785	14-559-006	<b>Plunger (S)</b> tight fit for 1 ml
BBI-8530793	14-559-007	<b>Plunger (S)</b> tight fit for 2 ml
BBI-8530807	14-559-008	<b>Plunger (S)</b> tight fit for 5 ml
BBI-8530815	14-559-009	<b>Plunger (S)</b> tight fit for 15 ml
BBI-8530823	14-559-010	<b>Plunger (S)</b> tight fit for 30 ml
BBI-8530831	14-559-011	<b>Plunger (S)</b> tight fit for 60 ml

<b>Sartorius Stedim Order No.</b>	<b>Fisher Scientific Order No.</b>	<b>Description</b>
BBI-8530882	14-559-012	<b>Plunger (L)</b> easy fit for 1 ml
BBI-8530890	14-559-013	<b>Plunger (L)</b> easy fit for 2 ml
BBI-8530904	14-559-014	<b>Plunger (L)</b> easy fit for 5 ml
BBI-8530912	14-559-015	<b>Plunger (L)</b> easy fit for 15 ml
BBI-8530920	14-559-016	<b>Plunger (L)</b> easy fit for 30 ml
BBI-8530939	14-559-017	<b>Plunger (L)</b> easy fit for 60 ml
BBI-8530408	■■■■	<b>Hand Homogenizer "Eppendorf"</b> volume approx. 20 ml made of borosilicate glass

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