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THE NEW PRODUCT LINE - VARIOSHAKE

Shakers and Shaking Incubators

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OVERVIEW

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1 OVERVIEW

Varioshake line

Consists of:

- **Shakers** ◦ 10 models ◦ 3 sizes ◦ 5 motions



- **Shaking Incubators** ◦ 3 models ◦ 3 sizes ◦ orbital motion

OVERVIEW

Designation concept from Hydro and ECO consequently transferred to **Shakers**

Product line

Load capacity (8 kg)

VS 8 OE

Motion(O)

ECO = Basic (E)

O – **Orbital**

B – Bidirectional

T – Tumbling

R – Rocking

OH – Overhead

E – analogue controller

blank – digital controller

I – Incubator

OVERVIEW

Shakers

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Load 8 kg

- Shaking tray 330 x 330 mm
- Analogue or digital controller



Load 15 kg

- Shaking tray 450 x 450 mm
- Digital controller



Load 30 kg

- Shaking tray 676 x 540 mm
- Digital controller



Overhead 360°

- Rotating rack with 4 levels
- Each level for 3 vessels
- Height-adjustable clamping device

OVERVIEW

Designation concept transferred to **Shaking Incubators**



OVERVIEW

Shaking Incubators


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old design

Volume 45 l
VS 45 OI

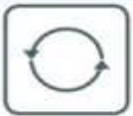
- Shaking tray
450 x 300 mm
- max. 2 trays
- Metal housing –
1 door



new design

Volume ~60 l
VS 60 OI

- Shaking tray
450 x 450 mm
- 1 tray
- Transparent lift-up
acrylic glass cover



old design

Volume 150 l
VS 150 OI

- Shaking tray
676 x 540 mm
- max. 2 trays
- Metal housing –
2 doors



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2 PRODUCT FEATURES

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Product features - Shakers

- 10 models
- 3 sizes plus 1 overhead rotator
- 5 different motions
- Load capacities: from 8 to 30 kgs
- Shaking speed from 1 to 500 min⁻¹ (acc. to model)
- Working areas:
330 x 330 mm,
450 x 450 mm,
676 x 540 mm or

12-post rotating rack (VS 20 OH)
for vessels up to 270 mm height



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Special features - Shakers

- Eco version with analogue controller ①
- Eco versions are suitable for operation in an incubator up to 60 °C (other shakers: 50 °C)
- Standard versions with digital controller ②
- New modern design – ultra-compact design
- Reduced footprint (up to 35 %) on the benchtop and in incubators



- Very easy operation – reduced to the essentials
- Extremely rugged drive mechanisms
- Long-term proven technique
- Maintenance-free
- VS 20 OH is one of the few big overhead shakers on the market and tried and tested for more than 25 years
- Comprehensive range of accessories for nearly any kind of vessel

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Product features – Shaking Incubators



3 models – 3 sizes


- Volumes: 45, ~ 60 and 150 liters
- Shaking speed: 20 to 250 min⁻¹
- Temperature constancy: ±0.2 K (temporal at 37 °C)
- Timer: 1 minute to 999:59 hours
- Load capacities: from 12 to 20 kgs
- Working areas:
 - 450 x 300 mm – 2 trays applicable
 - 450 x 450 mm – 1 tray applicable
 - 676 x 540 mm – 2 trays applicable
- built-in cooling coil for connection to tap water or a circulation chiller



3 CHARACTERISTICS OF DIFFERENT SHAKING MOTIONS Important factors to determine suitable shakers

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Characteristics of the different shaking motions

- **Orbital** 

Fast, gentle or vigorous, high loading capacity, very versatile; mostly used for **round** vessels e. g. Erlenmeyer flasks, beakers, petri dishes



- **Bidirectional** 

Slower than orbital shakers, very powerful motion. For tubes, bottles, separating funnels. Horizontal mounting possible. Danger: smashing of samples / cell membranes



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Characteristics of the different shaking motions

- Rocking 2-D
- Tumbling 3-D



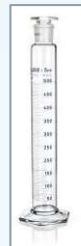
Slow ($2 - 50 \text{ min}^{-1}$) rocking or tumbling motion for reproducible preparation and growth conditions for e. g. cell cultures in bags, petri dishes, rim plates.



- Overhead 360°



Slow rotation speed ($1 - 20 \text{ min}^{-1}$), mostly used for shaking of mixing and sedimentation cylinders, bottles, tubes, etc., with viscous, pasty substances or powders.



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APPLICATIONS

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Shaker - Applications

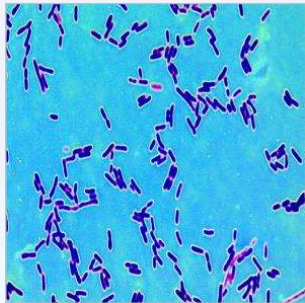


All-purpose tools for nearly any laboratory

- Mixing of liquids and powders of all kinds
- Prevention of sedimentation
- Separation works
- Extractions with solvents
- Insert of oxygen, for cultivation of bacteria or yeast
- Sample preparation in all kinds of vessels
- Incubation works by placing the shaker inside an incubator

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Shaking Incubators - Applications



- Used in cell biology, microbiology, food industry, etc.
- Exact tempering and mixing of liquids of all kinds (up to 70 °C)
- Incubations
- Growth of yeast or bacteria with increased insert of oxygen (E. coli, mammalian cells)
- Growth of cell cultures
- Quality assurance – e. g. food industry



VS 60 OI

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AVAILABILITY

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Available for different voltages

Device type	Device variant	230 V; 50/60 Hz (EU)	115 V; 60 Hz (USA)	100 V; 50/60 Hz (JP)	230 V; 50/60 Hz (UK)	230 V; 50/60 Hz (BR)	230 V; 50/60 Hz (AUS)	230 V; 50/60 Hz (CH)	230 V; 50/60 Hz (CN)
		CEE7/7 angled, "Schuko"	NEMA 5-15P	NEMA 5-15P	BS1363 angled	NBR 14136, BR/3/20	AS/NSZ 3112, SAA/3/15	SEV 1011, SEV 5934/2, T23	GB2099
VS 8 OE	Shaker	L003055	L003187	L003200	L003122	L003148	L003161	L003135	L003174
VS 8 BE	Shaker	L003056	L003188	L003201	L003123	L003149	L003162	L003136	L003175
VS 8 O	Shaker	L003057	L003189	L003202	L003124	L003150	L003163	L003137	L003176
VS 8 B	Shaker	L003058	L003190	L003203	L003125	L003151	L003164	L003138	L003177
VS 15 T	Shaker	L003059	L003191	L003204	L003126	L003152	L003165	L003139	L003178
VS 15 R	Shaker	L003060	L003192	L003205	L003127	L003153	L003166	L003140	L003179
VS 15 O	Shaker	L003061	L003193	L003206	L003128	L003154	L003167	L003141	L003180
VS 15 B	Shaker	L003062	L003194	L003207	L003129	L003155	L003168	L003142	L003181
VS 30 O	Shaker	L003063	L003195	L003208	L003130	L003156	L003169	L003143	L003182
VS 20 OH	Shaker	L003064	L003196	L003209	L003131	L003157	L003170	L003144	L003183
VS 60 OI	Shaking incubator	L003052	L003197	L003210	L003132	L003158	L003171	L003145	L003184
VS 45 OI	Shaking incubator	L003053	L003198	L003211	L003133	L003159	L003172	L003146	L003185
VS 150 OI	Shaking incubator	L003054	L003199	L003212	L003134	L003160	L003173	L003147	L003186

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ACCESSORIES

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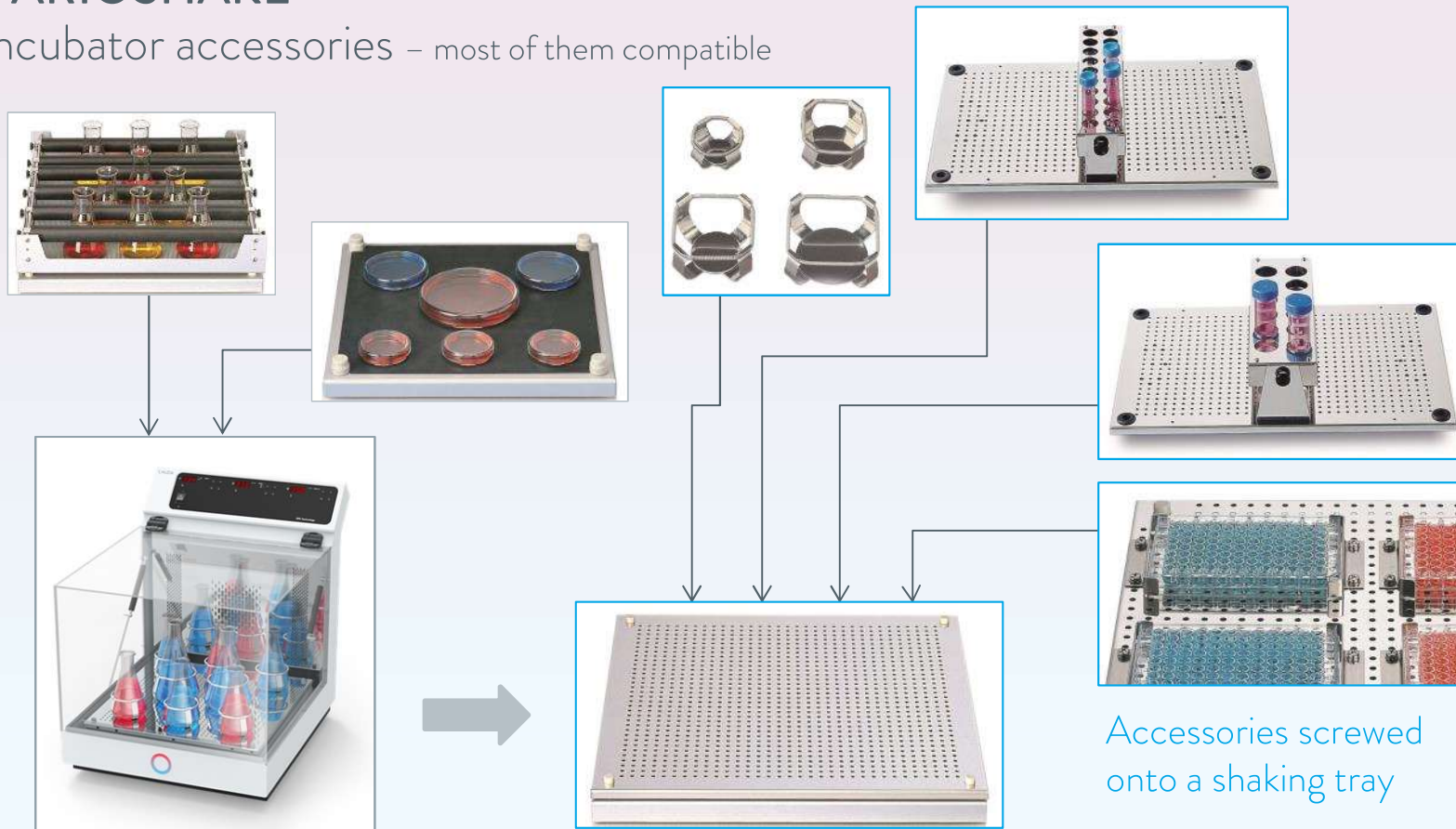
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Shaker accessories – most of them compatible



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Incubator accessories – most of them compatible



Accessories screwed onto a shaking tray

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Accessories



Clamps for Erlenmeyer flasks

		Shaker VS 8	Shaker VS 15	Shaker VS 30	Shaking Incubator VS 45 OI	Shaking Incubator VS 60 OI	Shaking Incubator VS 150 OI
Tray	Cat. No.	A000044	A000045	A000047	A000046	A000045	A000047
Clamp for Erlenmeyer flask 25 ml	A000025	45 pcs.	79 pcs.	99 pcs.	52 pcs.	79 pcs.	99 pcs.
Clamp for Erlenmeyer flask 50 ml	A000026	25 pcs.	49 pcs.	99 pcs.	33 pcs.	49 pcs.	99 pcs.
Clamp for Erlenmeyer flask 100 ml	A000027	16 pcs.	36 pcs.	50 pcs.	22 pcs.	36 pcs.	50 pcs.
Clamp for Erlenmeyer flask 200 ml	A000028	12 pcs.	22 pcs.	26 pcs.	15 pcs.	22 pcs.	26 pcs.
Clamp for Erlenmeyer flask 250 - 300 ml	A000029	9 pcs.	16 pcs.	26 pcs.	13 pcs.*	16 pcs.	26 pcs.
Clamp for Erlenmeyer flask 500 ml	A000030	9 pcs.	12 pcs.	26 pcs.	10 pcs.*	12 pcs.	26 pcs.
Clamp for Erlenmeyer flask 1000 ml	A000031	4 pcs.	9 pcs.	12 pcs.	6 pcs.*	9 pcs.	12 pcs.**
Clamp for Erlenmeyer flask 2000 ml	A000053	2 pcs.	4 pcs.	9 pcs.	3 pcs.*	4 pcs.	9 pcs.**

* From clamps 300 ml only 1 tray applicable

** From clamps 1000 ml only 1 tray applicable

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Accessories








Clamps for Separating funnels

		Shaker VS 8 Bx	Shaker VS 15 B	Shaker VS 30	Shaking Incubator VS 45 OI	Shaking Incubator VS 60 OI	Shaking Incubator VS 150 OI
Tray	Cat. No.	A000044	A000045	A000047	A000046	A000045	A000047
Clamp for 50 ml Separating funnel (Squibb)	A000054	6 pcs.	11 pcs.	n/a	n/a	n/a	n/a
Clamp for 100 ml Separating funnel (Squibb)	A000055	6 pcs.	11 pcs.	n/a	n/a	n/a	n/a
Clamp for 250 ml Separating funnel (Squibb)	A000056	4 pcs.	8 pcs.	n/a	n/a	n/a	n/a
Clamp for 250 ml Separating funnel (Conical form)	A000057	4 pcs.	8 pcs.	n/a	n/a	n/a	n/a
Clamp for 500 ml Separating funnel (Squibb)	A000058	3 pcs.	6 pcs.	n/a	n/a	n/a	n/a


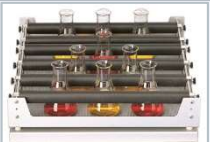


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Accessories

			Shaker VS 8	Shaker VS 15	Shaker VS 30	Shaking Incubator VS 45 OI	Shaking Incubator VS 60 OI	Shaking Incubator VS 150 OI
Tray		Cat. No.	A000044	A000045	A000047	A000046	A000045	A000047
Test tube rack for max. 24 tubes 12 - 17 mm Ø		A000059	3 pcs.	6 pcs.	9 pcs.	3 pcs.	6 pcs.	9 pcs.
Test tube rack for max. 24 tubes 25 - 29 mm Ø		A000060	2 pcs.	4 pcs.	8 pcs.	2 pcs.	4 pcs.	8 pcs.
Adhesive mat, black, 200 x 200 mm		A000041	2 pcs.	4 pcs.	8 pcs.	3 pcs.	4 pcs.	8 pcs.
Non-slip mat, for shaking table or tray		A000042	1	--	--	--	--	--
Non-slip mat, for shaking table or tray		A000043	--	1	--	--	1	--

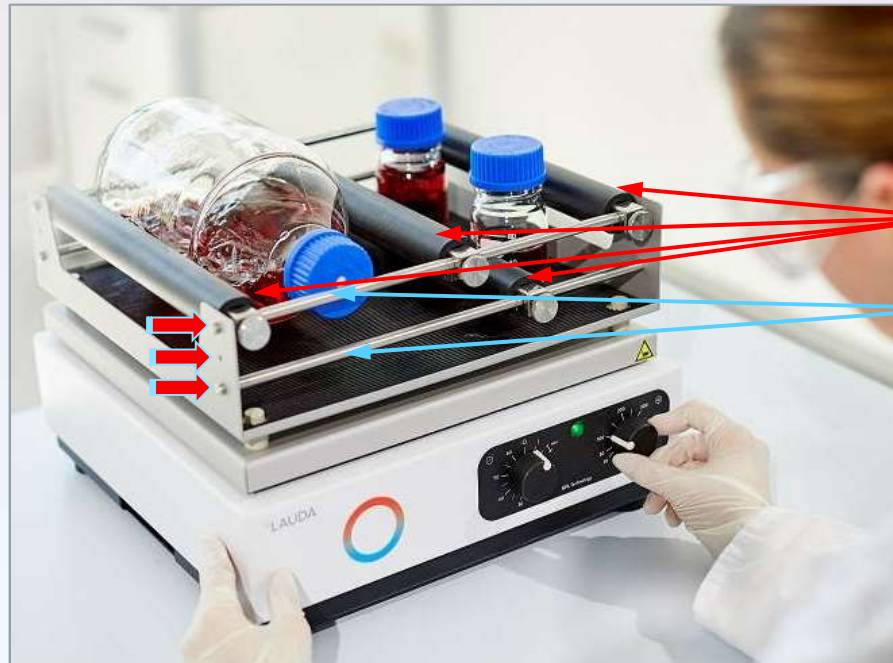
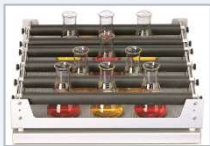
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Accessories

			Shaker VS 8	Shaker VS 15	Shaker VS 30	Shaking Incubator VS 45 OI	Shaking Incubator VS 60 OI	Shaking Incubator VS 150 OI
Universal mount		A000048	1 pc.	--	--	--	--	--
Universal mount		A000049	--	1 pc.	--	--	1 pc.	--
Universal mount		A000050	--	--	1 pc.	--	--	--
Platform frame for VS 15 T and R		A000051	--	1 pc.	--	--	--	--

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Universal mounts – absolutely universal



UNIVERSAL MOUNT

for secure attachment of different shaking objects between the adjustable rubber-coated bars.

The stainless steel side bars

can be mounted in three different heights (25, 45 and 65 mm above tray), enabling an unlimited variety of attachments.

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SUMMARY

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SUMMARY

Varioshake - a LAUDA premiere

NEW

- Comprehensive range of powerful shakers and application-oriented accessories
- New modern design and reduced but strengthened range (in comparison to the former GFL range)
- New ultra-compact housings for a reduced footprint (up to 35 %) on the benchtop and in incubators

RELIABLE + RUGGED

- GFL Technology, robust and reliable from one of the most competent and renown manufacturers in the field of laboratory equipment
- Extremely rugged drive mechanisms
- Long-term proven technique
- Maintenance-free

PRICE

- Competitive price and excellent price-performance ratio

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APPENDIX Technical Data

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Technical data – Orbital shakers

	VS 8 OE	VS 8 O	VS 15 O	VS 30 O
Shaking motion	orbital			
Control	analogue	digital		
Shaking platform	330 x 330 mm		450 x 450 mm	676 x 540 mm
Load capacity	max. 8 kg		max. 15 kg	max. 30 kg
Shaking frequency	20 - 500 min ⁻¹		20 - 300 min ⁻¹	20 - 250 min ⁻¹ (when the rack frame is used: 20 - 200 min ⁻¹)
Shaking amplitude	10 mm		30 mm	32 mm
Timer	Up to 60 minutes or continuous operation	1 minute to 99:59 hours or continuous operation		
Ambient temperature	+10 °C to +60 °C	+10 °C to +50 °C		
RS232 Interface	----	optional		
Exterior dimensions (W x D x H)	350 x 375 x 160 mm	350 x 355 x 160 mm	480 x 487 x 160 mm	705 x 607 x 160 mm
Net weight	12.0 kg	12.0 kg	18.0 kg	34.0 kg

Dimensions and weights of the devices have not yet been verified yet and may possibly slightly change.

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Technical data – Bi-directional shakers

	VS 8 BE	VS 8 B	VS 15 B
Shaking motion	bi-directional		
Control	analogue	digital	
Shaking platform	330 x 330 mm		450 x 450 mm
Load capacity	max. 8 kg		max. 15 kg
Shaking frequency	20 - 300 min ⁻¹		
Shaking amplitude	20 mm		30 mm
Timer	Up to 60 minutes or continuous operation	1 minute to 99:59 hours or continuous operation	
Ambient temperature	+10 °C to +60 °C	+10 °C to +50 °C	
RS232 Interface	----	optional	
Exterior dimensions (W x D x H)	350 x 375 x 160 mm	350 x 355 x 160 mm	480 x 487 x 160 mm
Net weight	12.0 kg	12.0 kg	18.0 kg

Dimensions and weights of the devices have not yet been verified yet and may possibly slightly change.

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Technical data – Tumbling/rocking/overhead shakers

	VS 15 T	VS 15 R	VS 20 OH
Shaking motion	tumbling	rocking	overhead 360°
Control	digital		analogue
Shaking platform	450 x 450 mm		rotating rack with 4 planes, each with adjustable clamping frame
Load capacity	max. 15 kg		max. 20 kg
Shaking frequency	2 - 50 min ⁻¹		1 - 20 min ⁻¹
Shaking amplitude	3 ° to horizontal		360 ° rotating
Timer	1 minute to 99:59 hours or continuous operation		----
Ambient temperature	+10 °C to +50 °C		+10 °C to +40 °C
RS232 Interface	optional		----
Exterior dimensions (W x D x H)	480 x 487 x 160 mm		770 x 700 x 715 mm
Net weight	18.0 kg		62.0 kg

Dimensions and weights of the devices have not yet been verified yet and may possibly slightly change.

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Technical data – Shaking incubators

	VS 45 OI	VS 60 OI	VS 150 OI
Shaking motion	orbital		
Control	digital, PID-type temperature controller		
Usable space (W x D x H)	450 x 300 x 320 mm	450 x 450 x 320 mm	676 x 540 x 430 mm
Volume/capacity	approx. 45 l / 2 trays max.	approx. 68 l / 1 tray	approx. 150 l / 2 trays max.
Load capacity	max. 12 kg	max. 12 kg	max. 20 kg
Shaking frequency	20 - 250 min ⁻¹		20 - 250 min ⁻¹ (if both trays are loaded: 20 - 200 min ⁻¹)
Shaking amplitude	25 mm	30 mm	25 mm
Timer	1 minute to 999:59 hours		
Temperature range	from 8 °C above ambient to +70 °C		
RS232 Interface	supplied as standard		
Exterior dimensions (W x D x H)	710 x 650 x 710 mm	525 x 686 x 631 mm	930 x 890 x 820 mm
Net weight	70.0 kg	43.0 kg	138.0 kg

Dimensions and weights of the devices have not yet been verified yet and may possibly slightly change.