Laboratory Equipment

Contents

Quality with Tradition

Founded by Edmund Bühler in the university city of Tübingen in 1880, Edmund Bühler GmbH is still owned by the family today.

More than 125 years later, Edmund Bühler GmbH has developed to become a company which operates throughout the world. The production and sales of conventional laboratory devices is traditionally a main focus of the company. A second focal point is the development and production of research equipment, in particular for the quickly growing field of materials science.

In the laboratories of the world, the "Bühler Shaker" is considered to be a synonym for the efficiency of the company. Competence, experience and the commitment to excellence in quality, which is steadily anchored in the company philosophy, form the basis for a unique program of technically mature products. The number of variations offered here makes the implementation of various application requirements possible.

Customized solutions, the specifications of which have been exactly developed for individual scenarios, round off the range of products on offer. Experienced and qualified employees and the high vertical range of manufacturing at the location in Hechingen provide the basis for our flexibility.

As a partner of our customers, we gladly accept the responsibility of always making the optimal solutions available. Do not expect less.

Miniature Shaker KM 2 ↻
Highly reliable shaker which requires little space
Basic Equipment: Basic device incl. basic platform and rubber mat

Rack Systems / Accessories
❶ Universal tray KM Mini		No. 0052 119
❷ Universal tray KM		No. 0052 030

Accessories see page 22

Loading Capacity
Erlenmeyer flasks	100 ml	9 pieces
Erlenmeyer flasks	500 ml	4 pieces

Further loading possibilities see page 23

Motion:	orbital
Shaking platform:	200 x 295 mm
Max. load:	2 kg
Shaking speed:	30 - 420 rpm, steplessly adjustable
Stroke:	8 mm
Timer:	0 - 120 min / continuous

KM 2   **No. 6113 000**

Technical Data
Electrical supply:	230 V, 50 / 60 Hz
Enclosure protection:	IP 21
Heat emission:	approx. 15 - 20 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	220 x 410 x 130 mm
Weight:	8.5 kg

Miniature Shaker KM 2 Akku ↻
Well suited for operation in refrigerators or incubators
Basic Equipment: Basic device incl. basic platform and rubber mat, with battery charger / power unit

Rack Systems
❶ Universal tray KM Mini		No. 0052 119
❷ Universal tray KM		No. 0052 030

Accessories see page 22

Loading Capacity
Erlenmeyer flasks	10 ml	20 pieces
Erlenmeyer flasks	50 ml	12 pieces

Further loading possibilities see page 23

Motion:	orbital
Shaking platform:	200 x 295 mm
Max. load:	2 kg
Shaking speed:	30 - 420 rpm, steplessly adjustable
Stroke:	8 mm

KM 2 Akku   **No. 6135 000**

### Technical Data
Electrical supply battery charger:	100 -240 V, 50 / 60 Hz
	115 V version on request
Internal electrical supply:	2 batteries 24 V / 2,2 Ah
Enclosure protection:	IP 21
Heat emission:	approx. 4 W
Ambient temperature:	5°C to 40°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	220 x 410 x 130 mm
Weight:	9.5 kg

Microplate Shaker TiMix 2 ↻
Special shaker for small samples in microplates
Basic Equipment: Basic device incl. basic platform with holders for 4 microplates
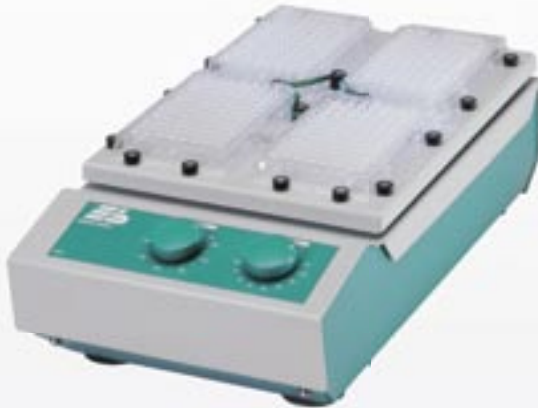
Rack Systems / Accessories
❸ Basic platform KM   No. 0052 072
❹ Clamping strips KM for ❸ Basic platform KM   No. 0052 115
Accessories see page 22

Loading Capacity
4 microplates,
deepwell-plates, or other plates in microplate format

Motion:	exact orbital motion
Shaking platform:	200 x 295 mm for 4 microplates
Max. load:	2 kg
Shaking speed:	100 - 1400 rpm, steplessly adjustable
Stroke:	3 mm
Timer:	0 - 120 min / continuous
TiMix 2	**No. 6110 000**

Technical Data
Electrical supply:	230 V or 115 V, 50 / 60 Hz please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 10 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	220 x 410 x 110 mm
Weight:	8.5 kg

Accessories / Rack Systems for Miniature Shakers

❶❶ Universal tray KM Mini - **No. 0052 119**

❷❷ Universal tray KM - **No. 0052 030**
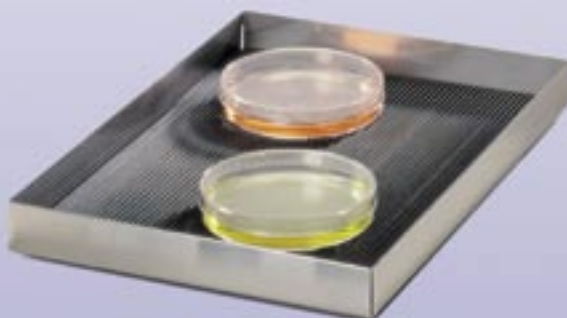
❸ Basic platform KM - **No. 0052 072**
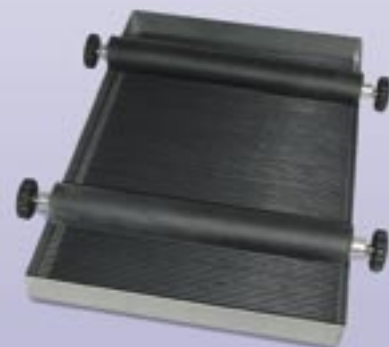
❹ Clamping strips KM for ❸ Basic platform KM - **No. 0052 115**

Dual-Action Shaker KL 2 ↻ + ⟷

The „2 in 1" shaker
Basic Equipment: Basic device incl. rack system with 3 clamping strips h and rubber mat

Accessories
Clamping strips for fastening other vessels see page 22

Loading Capacity

Erlenmeyer flasks	250 ml	9 pieces
Separating funnels	250 ml	3 pieces

Further loading possibilities see page 23

Motion:	can be switched from orbital to reciprocating
Shaking platform:	300 x 300 mm
Max. load:	2 kg
Shaking speed:	30 - 420 rpm, steplessly adjustable
Stroke:	8 mm
Timer:	0 - 120 min / continuous

KL 2 **No. 6115 000**

Technical Data

Electrical supply:	230 V or 115 V, 50 / 60 Hz please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 7 - 10 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	355 x 455 x 195 mm
Weight:	13.5 kg

Tilt Shaker WS 10 ↜↝

Slow, linear tilting motion
Basic Equipment: Basic device incl. basic tray and rubber mat

Rack Systems / Accessories

❶ Multi-storey rack system WS / TL	No. 0051 247
❷ Additional tray 340 x 340 mm	No. 0051 502
❸ Additional tray 340 x 500 mm	No. 0051 413

| Motion:	linear tilting motion
Shaking platform:	340 x 340 mm
Max. load:	10 kg
Shaking speed:	1-23 rpm, steplessly adjustable
Angle of tilt:	5° fixed
Timer:	0 - 120 min / continuous

WS 10 **No. 6114 000**

Technical Data

Electrical supply:	230 V, 50 / 60 Hz 115 V version on request
Enclosure protection:	IP 21
Heat emission:	approx. 10 -15 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	355 x 450 x 205 mm
Weight:	18.5 kg

Three-Dimensional Shaker TL 10 ⬭

Slow, three-dimensional motion

Basic Equipment: Basic device incl. basic tray and rubber mat

Rack Systems / Accessories
❶ Multi-storey rack system WS / TL   No. 0051 247
❷ Additional tray 340 x 340 mm   No. 0051 502
❸ Additional tray 340 x 500 mm   No. 0051 413

Motion:	three-dimensional orbital motion
Shaking platform:	340 x 340 mm
Max. load:	10 kg
Shaking Speed:	1 - 23 rpm, steplessly adjustable
Angle of inclination:	0° to 9° adjustable
Timer:	0 - 120 min / continuous

TL 10   **No. 6117 000**

Technical Data
Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 7 - 10 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	355 x 450 x 205 mm
Weight:	18.5 kg

Accessories / Rack Systems for Vario Shakers
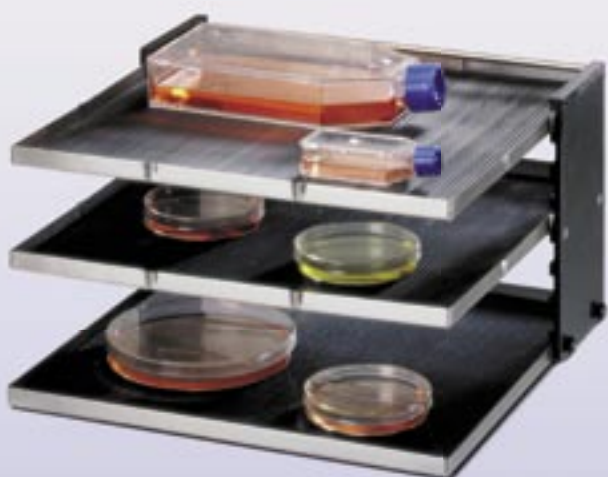
❶❶ Multi-storey rack system WS / TL - **No. 0051 247**
     incl. 2 trays 340 x 340 mm

Compact Shaker KS 15 ↺ or ⟷
Reliable, robust shaker for daily use
Basic Equipment: Basic device without shaking plate, without rack system

Rack Systems / Accessories
❶ Rack System Combifix KS   No. 0052 071
❷ Universal tray KS   No. 0051 471
❸ Incubator hood TH 15   No. 6161 000
Accessories see page 22

Loading Capacity
Erlenmeyer flasks	250 ml	12 pieces
Erlenmeyer flasks	500 ml	6 pieces
Separating funnels	250 ml	3 pieces

Further loading possibilities see page 23

Motion:	Model A orbital
	Model B reciprocating (horizontal)
Shaking platform:	400 x 300 mm
Max. load:	15 kg
Shaking speed:	30 - 420 rpm, steplessly adjustable
Stroke:	17 mm
Timer:	0 - 120 min / continuous

KS 15 A   **No. 6171 000**
KS 15 B   **No. 6173 000**

Technical Data
Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	5 - 10 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	510 x 490 x 150 mm
Weight:	18 kg

Compact Shaker KS 15 control ↺ or ⟷
For reproducible shaking tasks
Basic Equipment: Basic device without shaking plate, without rack system
With digital display (set value / actual value) and programmable control

Rack Systems / Accessories
❶ Rack system Combifix KS   No. 0052 071
❷ Universal tray KS   No. 0051 471
❸ Incubator hood TH 15   No. 6161 000
Accessories see page 22

Loading Capacity
Erlenmeyer flasks	100 ml	20 pieces
Erlenmeyer flasks	1000 ml	4 pieces

Further loading possibilities see page 23

Motion:	Model A control orbital
	Model B control reciprocating (horizontal)
Shaking platform:	400 x 300 mm
Max. load:	15 kg
Shaking speed:	30 - 420 rpm, steplessly adjustable
Stroke:	17 mm
Programmable timer:	1 min - 30 h / continuous

KS 15 A control   **No. 6170 000**
KS 15 B control   **No. 6172 000**

Technical Data
Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 18 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	510 x 490 x 150 mm
Weight:	19 kg

Accessories / Rack Systems for Compact Shakers

❶❶ Rack system Combifix KS - **No. 0052 071**

❷❷ Universal tray KS - **No. 0051 471**

❸❸ Incubator hood TH 15 - **No. 6161 000**

Microplate Shaker TiMix 5 ↻

High speed for optimal mixing of small sample volumes

Basic Equipment: Basic device without shaking plate, without rack system

Rack Systems / Accessories

❶	Standard rack system TiMix 5	No. 0052 101
❷	Additional tray TiMix 5	No. 0052 102
❸	Rack system with clamping pins	No. 0052 096
❹	Rack system with high clamping pins	No. 0052 104
❺	Rack system with metal clamping pins	No. 0052 125
❻	Rack System Combifix KS	No. 0052 071
❼	Universal tray KS	No. 0051 471
❽	Incubator hood TH 15	No. 6161 000

Loading Possibilities

Rack system ❶ or ❸	8 microplates
Rack system ❶ with ❷	16 microplates
Rack system ❹	24 microplates
Rack system ❺	48 microplates

Motion:	exact orbital motion
Shaking platform:	400 x 300 mm
	for 8 microplates
Max. load:	5 kg
Shaking speed:	100 - 1400 rpm, steplessly adjustable
Stroke:	3 mm
Timer:	0 - 120 min / continuous

TiMix 5   **No. 6166 000**

Technical Data

Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 10 - 13 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	510 x 490 x 150 mm
Weight:	19 kg

Microplate Shaker TiMix 5 control ↻

Top technology - also for integration in analytical robot systems

Basic Equipment: Basic device without shaking plate, without rack system
With digital display (set value / actual value) and programmable control

Rack Systems / Accessories

❶	Standard rack system TiMix 5	No. 0052 101
❷	Additional tray TiMix 5	No. 0052 102
❸	Rack system with clamping pins	No. 0052 096
❹	Rack system with high clamping pins	No. 0052 104
❺	Rack system with metal clamping pins	No. 0052 125
❻	Rack system Combifix KS	No. 0052 071
❼	Universal tray KS	No. 0051 471
❽	Incubator hood TH 15	No. 6161 000

Loading Possibilities

Rack system ❶ or ❸	8 microplates
Rack system ❶ with ❷	16 microplates
Rack system ❹	24 microplates
Rack system ❺	48 microplates

Motion:	exact orbital motion
Shaking platform:	400 x 300 mm
	for 8 microplates
Max. load:	5 kg
Shaking speed:	100 - 1400 rpm, steplessly adjustable
Stroke:	3 mm
Programmable timer:	1 min - 30 h / continuous

TiMix 5 control   **No. 6167 000**

Options

Serial interface RS 232	No. 0052 100
Defined stop (stop always in the same position)	No. 0052 098
TiMix 5 control with adjustable stroke (0 - 8 mm)	No. 6168 000

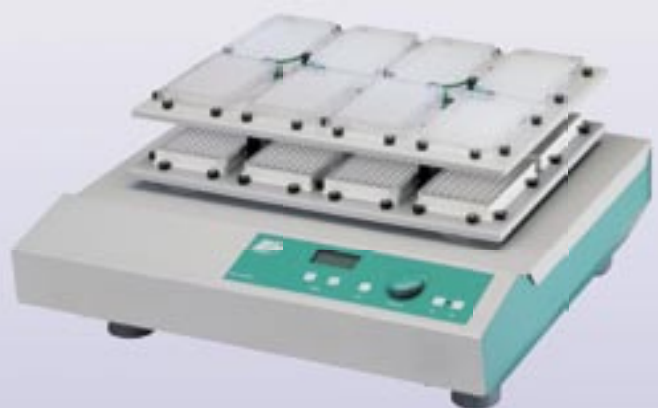## Technical Data

Electrcal supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 25 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	510 x 490 x 150 mm
Weight:	20 kg

Accessories / Rack Systems for Microplate Shakers

❶❶ Standard rack system TiMix 5 - **No. 0052 101**

❺❺ Rack system with metal clamping pins - **No. 0052 125**

❷❷ Additional tray TiMix 5 - **No. 0052 102**

❻❻ Rack system Combifix KS - **No. 0052 071**

❸❸ Rack system with clamping pins - **No. 0052 096**

❼❼ Universal tray KS - **No. 0051 471**

❹❹ Rack system with high clamping pins - **No. 0052 104**

❽❽ Incubator hood TH 15 - **No. 6161 000**

Universal Shaker SM 30 ↻ or ⟷ or ↻ + ⟷
Table-top shaker for high loads and continuous operation
Basic Equipment: Basic device with shaking plate and rubber mat, without rack system

Rack Systems / Accessories
❶ Rack system Combifix SM A   No. 0050 154
❷ Rack system Combifix SM B   No. 0050 155
❸ Rack system Combifix SM C   No. 0050 156
❹ Universal tray SM   No. 0051 472
❺ 2-storey top frame SM   No. 0052 065
❻ Incubator hood TH 30   No. 6162 000
Accessories see page 22

Loading Capacity
Erlenmeyer flasks	250 ml / 300 ml	20 pieces
Separating funnels	1000 ml	4 pieces
Test tube racks		5 pieces

Further loading possibilities see page 23

Motion:	Model A	orbital
	Model B	reciprocating (horizontal)
	Model C	can be switched from orbital to reciprocating

Shaking platform:	560 x 400 mm
Max. load:	30 kg
Shaking speed:	15 - 300 rpm, steplessly adjustable
Stroke:	26 mm, 30 or 46 mm
Timer:	0 - 120 min / continuous
SM 30 A	**No. 6101 000**
SM 30 B	**No. 6103 000**
SM 30 C	**No. 6105 000**

Technical Data
Stroke:	Model A + C:	26 mm
	Model B:	30 mm / option 46 mm*

*please indicate in case of order - stroke change is only possible in our works

Electrical supply:	230 V or 115 V, 50 / 60 Hz please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 20 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	680 x 610 x 160 mm
Weight:	33 kg

Universal Shaker SM 30 control ↻ or ⟷ or ↻ + ⟷
Programmable shaking tasks for the mixing of difficult media
Basic Equipment: Basic device with shaking plate and rubber mat, without rack system
With digital display (set value / actual value) and programmable control

Rack Systems / Accessories
❶ Rack system Combifix SM A   No. 0050 154
❷ Rack system Combifix SM B   No. 0050 155
❸ Rack system Combifix SM C   No. 0050 156
❹ Universal tray SM   No. 0051 472
❺ 2-storey top frame SM   No. 0052 065
❻ Incubator hood TH 30   No. 6162 000
Accessories see page 22

Loading Capacity
Erlenmeyer flasks	100 ml	42 pieces
Separating funnels	250 ml	6 pieces

Further loading possibilities see page 23

Motion:	Model A control	orbital
	Model B control	reciprocating (horizontal)
	Model C control	can be switched from orbital to reciprocating

Shaking platform:	560 x 400 mm
Max. load:	30 kg
Shaking speed:	15 - 300 rpm, steplessly adjustable
Stroke:	26 mm, 30 or 46 mm
Programmable timer:	1 min - 30 h / continuous
SM 30 A control	**No. 6100 000**
SM 30 B control	**No. 6102 000**
SM 30 C control	**No. 6104 000**

Technical Data
Stroke:	Model A + C:	26 mm
	Model B:	30 mm / option 46 mm*

*please indicate in case of order - stroke change is only possible in our works

Electrical supply:	230 V or 115 V, 50 / 60 Hz please indicate in case of order
Enclosure protection:	IP 21
Heat emission:	approx. 20 - 30 W
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	680 x 610 x 160 mm
Weight:	33 kg

Accessories / Rack Systems for Universal Shakers

❶❶ Rack system Combifix SM A - **No. 0050 154**

❹❹ Universal tray SM - **No. 0051 472**

❷❷ Rack system Combifix SM B - **No. 0050 155**

❺❺ 2-storey top frame SM - **No. 0052 065**

❸❸ Rack system Combifix SM C - **No. 0050 156**

❻❻ Incubator hood TH 30 - **No. 6162 000**

Incubator Hood TH 15

Constant temperatures; also for high vessels (e.g. 1000 ml Erlenmeyer flasks)
Can be combined with all compact shakers or used as independent unit
Basic Equipment: Coated metal housing with 3 windows, the front door opens upwards
Safety cut-off of the shaker if combined with a Bühler Compact Shaker
Standard temperature controller 5°C above ambient to +50°C

Accessories
● Shelf TH 15   No. 0052 126
Description see page 20

Temperature range:	5°C above ambient to +50°C
	: to +60°C option
Temperature accuracy:	+ / - 1% of the set value
Inner dimensions:	490 x 410 x 310 mm (w x d x h)

Technical Data

Temperature sensor:	PT 100
Air circulation:	240 m³/h
Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
External Dimensions	
(w x d x h):	510 x 450 x 455 mm
Weight:	21 kg

TH 15   **No. 6161 000**

Option
Extended temperature range up to + 60°C   **No. 0052 105**
            Installation only possible in our works
Description see page 20

Accessories for Incubator Hood TH 15

● Shelf TH 15 - **No. 0052 126**

Incubator hood TH 30

Excellent system thanks to reproducible ambient temperatures and useful accessories
Can be combined with all universal shakers or used as independent unit
Basic Equipment: Coated metal housing with 3 windows, the front door opens upwards
Safety cut-off of UV light and stop of the shaker,when the front door is opened, if combined with a Bühler Universal Shaker
Standard temperature controller 5°C above ambient to +50°C

Accessories
❶ Shelf TH 30   No. 0052 123
❷ 2-storey top frame SM / TH   No. 0052 117
Description see page 20

Temperature range:	5°C above ambient to +50°C
	: to +60°C option
	cooling possibility available as option
Temperature accuracy:	+ / - 1% of the set value
Inner dimensions:	660 x 540 x 430 mm (w x d x h)
	height sufficient for
	2000 ml Erlenmeyer flasks
Lighting:	standard light 15W
	UV light 15W

Technical Data
Temperature sensor:	PT 100
Air circulation:	240 m³/h
Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
External Dimensions (w x d x h):	680 x 610 x 560 mm
Weight:	33 kg

TH 30   **No. 6162 000**

Options
Extended temperature range up to +60°C   **No. 0052 105**
          Installation only possible in our works
Cooling device TH 30   **No. 0051 581**
          Installation only possible in our works
Description see page 20

Accessories for Incubator Hood TH 30

❶ Shelf TH 30 - **No. 0052 123**   ❷ 2-storey top frame SM / TH - **No. 0052 117**

Multi-Flask Shaker VKS 75 control ↻ or ⟷

Big heavy-duty shaker for high loads also during continuous operation (floor installation only!)
Basic Equipment: Basic device without shaking plate, without rack system
With digital display (set value / actual value) and programmable control

Rack Systems / Accessories

❶	Shaking plate VKS (1-storey)	No. 0052 070
❷	Rack system Combifix VKS A	No. 0051 487
❸	Rack system Combifix VKS B	No. 0051 488
❹	Rack system Combifix VKS C	No. 0051 489
❺	Universal tray VKS	No. 0051 474
❻	Top frame VKS „Giant" (3-storey)	No. 0052 068

Trays see page 21
Accessories see page 22

Loading Capacity

Erlenmeyer flasks	500 ml	40 pieces per storey
Erlenmeyer flasks	2000 ml	12 pieces per storey
Separating funnels	1000 ml	6 pieces per storey

Motion:	Model A control orbital
	Model B control reciprocating (horizontal)
Shaking platform:	760 x 600 mm
Max. load:	75 kg
Shaking speed:	20 - 200 rpm, steplessly adjustable
Stroke:	26 mm, 50 or 36 / 60 / 80 mm
Programmable timer:	1 min - 30 h / continuous

VKS 75 A control	**No. 6111 000**
VKS 75 B control	**No. 6112 000**

Technical Data

Stroke:	Model A:	26 mm
	Model B:	50 mm /
		option 36 / 60 / 80 mm*

*please indicate in case of order - modification only possible in our works

Electrical supply:	230 V or 115 V, 50 / 60 Hz
	please indicate in case of order
Enclosure protection:	IP 21
Ambient temperature:	5°C to 50°C
Relative humidity:	~ 85 %
Dimensions (w x d x h):	1050 x 835 x 250 mm
Weight:	110 kg

Accessories / Rack Systems for Multi-Flask Shakers

❶ Shaking plate VKS (1-storey) - **No. 0052 070**
Necessary for fastening ❷❸❹❺

❷ Rack sytem Combifix VKS A - **No. 0051 487**

❺ Universal tray VKS - **No. 0051 474**

❸ Rack system Combifix VKS B - **No. 0051 488**

❹ Rack system Combifix VKS C - **No. 0051 489**

❻ Rack system VKS „Giant" - **No. 0052 068**

Rack Systems for Miniature Shakers

Universal tray KM Mini
No. 0052 119
Coated tray with drillings for individual loading with spring clamps or test tube racks.
Shaking platform 200 x 295 mm.

Universal tray KM
No. 0052 030
Coated tray with drillings for individual loading with spring clamps or test tube racks.
Shaking platform 356 x 300 mm.

Shaking platform KM
No. 0052 072
For shaker TiMix 2 (instead of standard platform). Flat shaking platform with rim (20 mm) and rubber mat.
Clamping strips see page 22.
Shaking platform 200 x 295 mm.

Rack Systems for Vario Shakers

Multi-storey rack system WS / TL
No. 0051 247
With 2 trays (340 x 340 mm) and rubber mat for shakers WS 10 and TL 10.

Tray WS / TL - size 340 x 340 mm
No. 0051 502
Additional tray for multi-storey rack WS /TL incl. rubber mat.

Tray WS / TL - size 340 x 500 mm
No. 0051 413
Additional tray for multi-storey rack WS /TL incl. rubber mat.

Rack Systems for Compact Shakers

Rack System Combifix KS
No. 0052 071
Rack system with 3 clamping strips h and rubber mat. Shaking platform 400 x 275 mm. For fastening upright vessels. With additional strips also suitable for other vessels (see page 22).
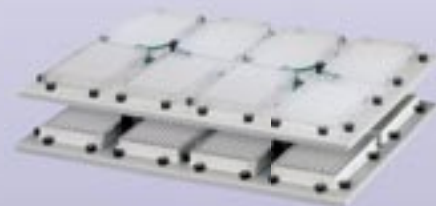
Universal tray KS
No. 0051 471
Coated tray with drillings for individual fastening of spring clamps, test tube racks, or holders for 1 microplate.
Shaking platform 430 x 300 mm.

Standard Rack System TiMix 5
No. 0052 101
For 8 standard microplates, microwell or deepwell plates, or other plates of the same size.

Additional tray TiMix 5
No. 0052 102
As a second storey on the standard rack system TiMix 5. Distance between the 2 trays max. 55 mm.

Rack System with clamping pins
No. 0052 096
For 8 standard microplates (128 x 85 mm).

Rack System Combifix SM A
No. 0050 154
Basic rack with 5 clamping strips h. For fastening different upright vessels. With additional strips also suitable for other vessels (see page 22).

Universal tray SM
No. 0051 472
Coated tray with drillings for individual fastening of spring clamps, test tube racks, or holders for 1 microplate. Shaking platform 560 x 400 mm (Accessories see page 22).

Rack System with high clamping pins
No. 0052 104
For max. 24 standard microplates, placed directly on top of each other.

Rack System Combifix SM B
No. 0050 155
Basic rack with 4 clamping strips h and 4 clamping strips v. For fastening horizontal vessels between the clamping strips, or as added support for high vessels. The maximum distance between the strips h and v is 60 mm. With additional strips also suitable for other vessels (see page 22).

2-storey top frame SM
No. 0052 065
Top frame with 2 coated trays with drillings for spring clamps or test tube racks.
Total height: 332 mm.
Distance between the 2 storeys: 300 mm.

Alternatively, the rack system Combifix SM or the universal tray SM can be mounted on the 2-storey top frame SM.

For easy handling (loading away from the shaker) it is recommended to use universal trays SM or sliding plates with Combifix SM, especially on the lower level.

Rack System with metal clamping pins
No. 0052 125
For max. 48 standard microplates, placed directly on top of each other.

Rack System Combifix SM C
No. 0050 156
Rack system with 2 clamping strips h, 2 cramp strips and 1 spring strip. For fastening separating funnels. Standard version of cramp strip: 5 clamps NS 19 (D20) and 2 clamps NS 29 (D32). With additional strips also suitable for other vessels (see page 22).

Sliding Plates
Sliding plates with Combifix SM. (Rack systems Combifix SM, but with additional base plate.)
Sliding Plate with Combifix SM A
No. 0051 484
Sliding Plate with Combifix SM B
No. 0051 485
Sliding Plate with Combifix SM C
No. 0051 486

Mounting set for rack systems, universal trays, or sliding plates on the 2-storey top frame SM.
No. 0052 074

Shelf TH 30
No. 0052 123
Additional tray for samples which have to be temperature controlled, but need no shaking.
Dimensions: 365 x 588 mm.
Installation only possible in our works.

Shelf TH 15
No. 0052 126
Additional tray for samples which have to be temperature controlled, but need no shaking.
Dimensions: 378 x 318 mm.
Installation only possible in our works.

2-storey top frame SM / TH
No. 0052 117
2-storey top frame for all SM shakers.
Dimensions adapted to TH 30.
For vessels with a max. height of 14 cm (Erlenmeyer flasks 200 / 250 ml).
Dimensions (w x d x h): 600 x 402 x 192 mm
For fastening the vessels, either universal trays SM or sliding plates with Combifix SM can be used (see page 19).

Extended temperature range up to 60°C
No. 0052 105
Installation of an additional heater in order to reach temperatures up to max 60°C.
Installation only possible in our works.

Cooling device TH 30
No. 0051 581
Installation of a cooling coil and connectors for an external cooling system (refrigerated circulator or flow-through cooler). Depending on the cooling capacity of the external cooler temperatures of approx. 5°C below room temperature can be reached.
Installation only possible in our works.

Shaking plate VKS (1-storey)
No. 0052 070
Base plate 760 x 600 mm incl. PE plate. Required for mounting universal tray VKS or rack systems Combifix VKS.

Rack System Combifix VKS A
No. 0051 487
Basic rack system with 9 clamping strips h.
For secure fastening of different upright vessels. With additional strips also suitable for other vessels (see page 22).
To be mounted on the shaking plate.

Rack System Combifix VKS B
No. 0051 488
Basic rack system with 4 clamping strips h and 4 clamping strips v. For fastening horizontal vessels between the clamping strips, or as added support for high vessels. The maximum distance between the clamping strips h and v is 60 mm (see page 22). To be mounted on the shaking plate.

Rack System Combifix VKS C
No. 0051 489
Basic rack system with 2 clamping strips h, 2 cramp strips and 1 spring strip. For fastening separating funnels. Standard version of cramp strip: 7 clamps NS 29 (D32). With additional strips also suitable for other vessels (see page 22). To be mounted on the shaking plate.

Universal tray VKS
No. 0051 474
Coated tray with drillings for spring clamps or test tube racks. Shaking platform 760 x 600 mm (Accessories see page 22).
To be mounted on the shaking plate.

Rack System VKS „Giant"
No. 0052 068
3-storey top frame.
For either 1 platform size 760 x 600 mm or 2 platforms size 560 x 400 mm per storey.

Platforms for
Rack System VKS „Giant"

Sliding plate with Combifix VKS A
No. 0051 493
Base plate 760 x 600 mm with basic rack and 9 clamping strips h.

Sliding plate with Combifix VKS B
No. 0051 494
Base plate 760 x 600 mm with basic rack, 4 clamping strips h and 4 clamping strips v.

Sliding plate with Combifix VKS C
No. 0051 495
Base plate 760 x 600 mm with basic rack and 2 clamping strips h, 2 cramp strips and 1 spring strip.

Universal tray VKS
No. 0051 496
Coated tray with drillings for spring clamps or test tube racks.
Shaking platform 760 x 600 mm.

Alternative platforms for
Rack System VKS „Giant"

Sliding plate with Combifix SM A
No. 0051 484
Base plate 560 x 400 mm with basic rack and 5 clamping strips h.

Sliding plate with Combifix SM B
No. 0051 485
Base plate 560 x 400 mm with basic rack, 4 clamping strips h and 4 clamping strips v.

Sliding plate with Combifix SM C
No. 0051 486
Base plate 560 x 400 mm with basic rack and 2 clamping strips h, 2 cramp strips and 1 spring strip.

Universal tray SM
No. 0051 472
Coated tray with drillings for spring clamps, test tube racks or holders for 1 microplate.
Shaking platform 560 x 400 mm.

Accessories for Shakers

	Miniature Shakers	Vario Shakers	Compact Shakers	Universal Shakers	Multi-Flask Shakers
Clamping strip h	**0052 115**	**0050 118**	**0050 118**	**0050 400**	**0050 387**
Clamping strip v		**0050 477**	**0050 477**	**0050 399**	**0050 388**
Cramp strip 4 clamps NS 19 (D20) 1 clamp NS 29 (D32)		**0050 206**	**0050 206**		
Cramp strip 5 clamps NS 19 (D20) 1 clamp NS 29 (D32)				**0050 401**	
Cramp strip 7 clamps NS 29 (D32)					**0050 390**
Spring strip		**0050 207**	**0050 207**	**0050 402**	**0050 389**

Clamping strip h
Holder with sponge rubber cover for fastening upright vessels.

Clamping strip v
Holder with sponge rubber cover in combination with clamping strip h. For fastening horizontal or high vessels.

Cramp strip
For fastening horizontal separating funnels.

Spring strip
For securing the stoppers of separating funnels or other horizontal vessels.

Spring clamps **(stainless steel)**	10 ml	25 ml	50 ml	100 ml	250 ml	500 ml	1000 ml	2000 ml
	0009 642	**0009 643**	**0009 644**	**0009 645**	**0009 646**	**0009 647**	**0009 648**	**0009 649**

Test tube racks (stainless steel)	
with 68 drillings à 14 mm ø	**0052 056**
with 44 drillings à 16 mm ø	**0052 057**
with 44 drillings à 18 mm ø	**0052 058**
with 14 drillings à 30 mm ø	**0052 201**

Hinged foot for test tube racks (stainless steel) Size fitting for all test tube racks	**0052 059**
Holder for 1 microplate (stainless steel)	**0052 053**

Spring clamps (stainless steel)
For universal trays. The sizes are related to Erlenmeyer flasks, but are also suitable for round-bottom flasks, beakers, etc.

Test tube racks (stainless steel)
To be fastened either with clamping strips on rack systems or with a hinged foot on universal trays. With the hinged foot it is possible to vary the angle of inclination of the test tubes. Dimensions 289 x 100 mm each.

Hinged foot for test tube racks (stainless steel)
Required for universal trays.

Holder for 1 microplate (stainless steel)
For fastening microplates on universal trays. The microplate is tilted by approx. 20°.

Loading Capacity of Universal Trays

Spring clamps (stainless steel)		KM Mini 200 x 295 mm Pieces (max.)	KM 356 x 300 mm Pieces (max.)	KS 430 x 300 mm Pieces (max.)	SM 560 x 400 mm Pieces (max.)	VKS 760 x 600 mm Pieces (max.)
Size	10 ml	23	58	68	117	280
	25 ml	15	29	34	64	138
	50 ml	15	27	27	63	136
	100 ml	15	24	24	49	62
	250 ml	6	12	15	23	52
	500 ml	4	8	9	15	35
	1000 ml	3	5	5	11	21
	2000 ml	1	2	2	6	12
Test tube racks (with hinged foot)		1	3	4	5	8

Loading Capacity of Rack Systems with Clamping Strips

Erlenmeyer flasks		KM 200 x 295 mm Pieces (max.)	KL 300 x 300 mm Pieces (max.)	KS 400 x 296 mm Pieces (max.)	SM 560 x 400 mm Pieces (max.)	VKS 760 x 600 mm Pieces (max.)
Size	10 ml	20				
	25 ml	16				
	50 ml	12	20	25	49	104
	100 ml	9	12	20	42	82
	250 ml	6	9	12	20	55
	500 ml	4	4	6	12	40
	1000 ml	2	2	4	6	20
	2000 ml	1	1	2	6	12
Test tube racks		1	1	2	5	8
Separating funnels						
Size	100 ml		4	4	10	16
	250 ml		3	3	6	12
	500 ml			2	4	8
	1000 ml			1	4	6
	2000 ml			1	2	4

Infrared Heater IRB 1
Compact laboratory heater with fast heating-up rate
Basic Equipment: Basic device with support cross

Accessories
❶ Power control LR 1   No. 6070 000
❷ Support rod for stand connection   No. 0012 164

Max. temperature:	700°C
Heating power:	200 W
Heating area:	60 x 60 mm

Technical Data

Electrical supply:	230 V or 115 V, 50 / 60 Hz
Dimensions (w x d x h):	100 x 105 x 105 mm
Weight:	0.7 kg

IRB 1 (230 V)	**No. 6060 000**
IRB 1 (115 V)	**No. 6061 000**

Infrared Heater IRB 2
Laboratory heater with power control for larger volumes
Basic Equipment: Basic device incl. integrated power contol, support cross

Accessories
❷ Support rod for stand connection   No. 0012 164

Max. temperature:	900°C
Heating power:	800 W
Heating area:	100 x 100 mm
Power control:	stepless control between 0 - 100 %

Technical Data

Electrical supply:	230 V, 50 / 60 Hz
Dimensions (w x d x h):	150 x 150 x 150 mm
Weight:	2.5 kg

IRB 2	**No. 6063 000**

Infrared Heater IRB 6

Modular laboratory heater with 6 x IRB 1 in a housing with 6 power control units. Each heater can be individually used and controlled.
Basic Equipment: 6 x IRB 1 with support crosses, 1 x power control unit LR 6

Accessories
❸ Support base   No. 0052 060
❹ Horizontal PVC rod for support base   No. 0052 091

Max. temperature:	each 700°
Heating power:	6 x 200 W
Heating area:	6 x 60 x 60 mm
Power control:	6 controls (0 - 100%)

Technical Data
Electrical supply:	230 V, 50 / 60 Hz
Heating power:	max. 1200 W
Dimensions (w x d x h):	697 x 305 x 122 mm
Weight:	9 kg

IRB 6   **No. 9066 000**

Accessories for Infrared Heaters

❶ Power control LR 1 - **No. 6070 000**
For IRB 1 - stepless control of the current consumption
between 0 - 100 %

❷❷ Support rod for stand connection - **No. 0012 164**
For IRB 1 and IRB 2 - stainless steel rod for integration of the
heater into a support stand, length: approx. 13 cm

❸ Support base - **No. 0052 060**
For IRB 6 - Base with 6 support rods (stainless steel),
length of the rods approx. 75 cm
(without PVC rods and clamps for vessels)

❹ Horizontal PVC rods for support base IRB 6 - **No. 0052 091**
For fastening clamps for glass vessels

Clamps for PVC rods

D50 (NS 45) - with distance piece, e.g. for Soxleth	**No. 0001 140**
D32 (NS 29) - with distance piece	**No. 0001 138**
D20 (NS 19) - with distance piece	**No. 0001 136**
D32 (NS 29) - without distance piece , e.g. for round-bottom flasks	**No. 0000 790**
D25 (NS 15) - without distance piece	**No. 0000 789**

Vibrogen Cell Mill VI 6

Vibratory homogenizer for the dissolution of samples according to the ball mill principle,
for the disintegration of cells, cell suspensions, or for defined comminution of particles into powder
Basic Equipment: Basic device incl. beaker support, without accessories

Accessories

Beaker, stainless steel		15 ml	No. 0001 058
		50 ml	No. 0001 059
		100 ml	No. 0001 060
		200 ml	No. 0001 061
		4 x 15 ml	No. 0050 326
Beaker, PVDF		15 ml	No. 0002 708
		50 ml	No. 0002 707
		100 ml	No. 0002 706
Glass balls		ø 0,1 mm	No. 0001 063
(PbO-free)		ø 0,3 mm	No. 0001 065
		ø 0,5 mm	No. 0001 066
		ø 1,0 mm	No. 0001 067

1kg each in plastic bottle

Speed:	4.500 rpm fix
Frequenzy:	75 Hz (constant)
Beakers:	15 - 200 ml
Cooling:	with dry ice or cooling water flow through the beaker support

Technical Data

Electrical supply:	230 V, 50 / 60 Hz
	115 V version on request
Dimensions (w x d x h):	485 x 340 x 370 mm
Weight:	45 kg

VI 6   **No. 6055 000**

Homogenizer

Homogenizer HO 4/A

Mechanical crushing of samples with wing knives at very high speed - dry or in suspension,
well suited for greasy / brittle, moist / fibrous as well as hard / brittle substances up to Mohs' hardness of 5
Basic Equipment: Basic device incl. protection beaker with safety lock, 2 open-end wrenches for fastening the accessories

Accessories

Spindle	Stainless steel	10 ml	No. 0051 949
Knife	Stainless steel	10 ml	No. 0002 983
Sample vessel	Duran	10 ml	No. 0001 488
Spindle	Stainless steel	25-150 ml	No. 0051 911
Knife	Stainless steel	25 ml	No. 0002 984
Knife	Stainless steel	50 ml	No. 0002 985
Knife	Stainless steel	100 ml	No. 0002 986
Knife	Stainless steel	150 ml	No. 0002 987
Sample vessel	Duran	25 ml	No. 0001 489
Sample vessel	Duran	50 ml	No. 0001 490
Sample vessel	Duran	100 ml	No. 0001 491
Sample vessel	Duran	150 ml	No. 0001 492

Spindle, knife and sample vessel must be matched in size

Speed range:	1.500 to 35.000 rpm, steplessly adjustable
Timer:	adjustable between 0 to 100 sec, min or h / continuous
Sample vessels:	Duran glass 10 -150 ml
Cooling:	with dry ice or cooling water flow through the protection beaker

Technical Data

Electrical supply:	230 V, 50 / 60 Hz
	115 V version on request
Dimensions (w x d x h):	320 x 350 x 600 mm
Weight:	20 kg

HO 4/A   **No. 3301 000**

Customized Solutions

With our comprehensive laboratory device program, we can offer coherent answers for most demands which arise from practical laboratory work. We believe that our job is even more. A special challenge are the very particular areas of use for which the standard is not enough. Here we design and produce customized solutions. Customer-oriented, quality conscious and tailor made. Some examples of our customized products:

Bottle shaker 1

Special rack system for TiMix 5

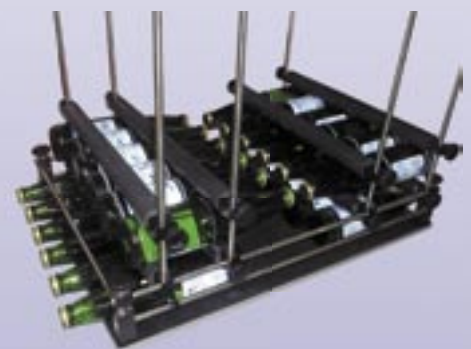Special attachment IRB 1

Sieve shaker

Cask shaker

TH 30 with opaque windows

Parallel beaker (4 x 15 ml) for Vibrogen Cell Mill VI 6

Special holder for separating funnels

Bottle shaker 2

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