

since 1949 To build the worlds most reliable Shaker

For over 60 years now, we have been designing, manufacturing and selling Kuhner Shaking Machines and Shaking Incubators.

Our motto is, to build the worlds most reliable shaking machines.

To support research at all possible levels, a dedication to quality and a high priority to customer service.

In supporting our wish to keep the high standards we set ourselves for the future, we acquired the Quality Certificate ISO 9001 in 1994.

Since 1949 our customers have been research laboratories at well known pharmaceutical and biotech companies, institutes and universities from all over the world.

Definitely Swiss made, with a 5 year warranty as proof of our belief in the quality and reliability of a Kuhner machine.







ISF1-X

ISF4-X

Level Shaking

Specializing in Shakers with an orbital or linear movement for continuous operation.

Employment of the latest technology for user friendly "at a glance" controls. Belt less low on energy consumption d.c. magnetic direct drive.

Fully stainless steel interior on all Shaking Incubators. Options of, cooling, controlled humidity, controlled CO₂, UV lighting, photosynthesis, software for ease of validation and much more.



Rack System

Lab-Therm LT-X



ES-X Lab-Shaker



LS-X Lab-Shaker



Change of shaking diameter only possible with a **Kuhner** shaker

Change of the shaking diameter possible at any time

Very sturdy, dependable, smooth running and energy efficient in house designed D.C. magnetic drive.

For continuous operation with heavy loads up to 25 kg.

The, by now, well known Kuhner parallelogram instead of a triple bearing set-up.

Change of shaking diameter possible at any time (12,5 mm, 25 mm, 50 mm, other shaking diameters feasible)





Control

No nonsense, user friendly, at a glance controls. Every parameter has it's own controller. No fiddling with control buttons or searching through complicated menus.

Precisely controlled temperature.

Precisely controlled temperature. A safe, stainless steel finned heater with a low surface temperature, and controlled by an electronic fully digital PID control which ensures an exact temperature.

The air circulates inside the incubator and flows gently past the heater and evaporator of the CFC free refrigerator unit.

The air does not rush over the flasks, it surrounds them uniformly, therefore no contamination of cultures from one flask to another and an equal evaporation in all flasks.

All PT100 temperature sensors are calibrated!

CFC free foamed insulation fills the inner cavity of the incubator case right to every last corner, so that no condensation can take place. It also keeps the same insulating qualities for the lifetime of the machine.

Controlled humidity to minimize evaporation. The humidifier is based on the principle of an electrically heated evaporation basin with automatic water refill. The relative humidity is measured by means of a capacitive sensor.

A fully electronic digital PID control ensures exact regulation of humidity. Condensation is avoided by heating the door frames and the window.

CFC free foamed insulation

Providing optimised shaking for cell cultures

our purpose-built Shaking Incubators – now available.



CO₂ / UV Photosynthesis

Controlled CO₂ for mammalian cells. A CO₂ controlled atmosphere in the Shaker-incubator allows exact pH adjustment of the cell culture medium. The operation of the CO₂ sensor is based on the NDIR single beam dual-wave length principle. The CO₂ is added to the circulating air in small quantities by a magnetic valve. Electronic, fully digital PID control incorporating a microprocessor ensures exact matching of the gas flow and accurately maintains the desired CO₂-value.



Integrated UV lamp for sterilization.

Photosynthesis for the growing of plant cells. Controlled CO₂ for mammalian cells.









250 ml



1000 ml

BioProcess Monitoring BPM-60

BioProcess Monitoring, BPM-60 non invasive online measurement of dissolved oxygen and pH in shake flasks.

The BMP-60 makes it possible to measure, online, the dissolved Oxygen and/or the pH value in a shaking flask.

An into the shaking table integrated socket makes a simple data communication and power supply possible.

Up to eight process parameters can be stored and displayed with the ISIS software

advantages

- + online signal
- + reproducibility
- + optimised cultivation conditions
- + made for PAT

Range O₂ 0–100 %











online oxygen and pH

BPM-60	oxygen	рН		
ports	one port for glass fibre (side), two for CAN-BUS (top)			
dimension	height: 156 mm diameter: 84 mm diameter of connector ring: 108 mm			
signal	O ₂ to CAN Bus	pH to CAN Bus		
holder	with optical unit			
optical unit	single version: O_2 or double version: O_2 and pH			
flask size	250, 500, 1000, 2000 ml			
ISIS	software for monitoring, calibration, controlling			
monitoring	8 additional process parameters (8 x O_2 or 4 x O_2	and pH)		
calibration	pre-calibrated sensor flasks			
recalibration	one point recalibration is possible			
applicable	98/NT/2000/XP/Vista			
GMP	21 CFR Part 11 compliance (audit trail)			
sensor flask	oxygen	рН		
measuring range	0-100 % O ₂	5.5–8.5 pH		
response time (t90) at 25 °C	30 sec	30 sec		
resolution	± 0.01 % O ₂ at 0.21 % O ₂ ± 0.1 % O ₂ at 20.9 % O ₂	± 0.01 pH at pH=7		
accuracy	\pm 0.05 % O ₂ at 0.2 % O ₂ \pm 0.4 % O ₂ at 20.9 % O ₂	\pm 0.05 pH at pH=7 with one-point adjustment \pm 0.10 pH at pH=7 with pre-calibration		
drift	< 0.015 % O_2 per day (sampling interval of 1 min.) < 0.005 pH per day (sampling interval of 1 min.)			
temperature range	from 5 to 50 °C			
compatibility	aqueous solutions, ethanol, methanol (max. 10 %	5 v/v), pH2–10		
cross-sensitivity	typically no cross-sensitivity in culture media reduced to ionic strength (salinity), a high tration of small fluorescent molecules in t range can interfere			
storage stability	18 months provided the sensor is stored in the d	lark		
calibration	sensor flask are pre-calibrated, a one point calibration is possible at the beginning of the experiment, when the medium conditions are defined (pH, pO_2)			
sterilization	sensor flask are delivered irradiated			
resterilization	steam sterilisation ethylene oxide ga mma irradiation	is not reco mmended		
tray plug	1: 24 V DC + 2: 24 V DC – 3: CAN-H 4: CAN-L 5: CAN-GND			



Lab-Therm LT-X

Shaking
Heating
Lighting
EX size tray 500 x 420 mm or
E size tray 420 x 420 mm
Stackable, max. 2 units
Pedestal for 1or 2 units, option
Cooling, option
Controlled humidity, option
Heated window, with controlled humidity
Blackened window, option
Controlled CO ₂ , option
Photosynthesis, option
UV, option
Dual table, option
Stationary tray, option
ISIS software option
IO-OO, option

And much more ...

Dimensions Lab-Therm LT-X

measurements in mm



Very reliable electro-magnetic direct drive

All stainless steel interior

Foamed insulation

Hermetically sealed double glazed window

User-friendly operation

(for each parameter it's own control)

Energy conscious drive and cooling system

Easy to stack, without use of any special stacking gadgets or tools

A 5 YEAR WARRANTY





SMX1700	SMX1701	SMX1703		
no	yes	yes		
no	no	yes		
ambient +10 °C	ambient –15 °C	ambient –15 °C		
80 °C	80 °C	80 °C		
-	_	85 % r.h.		
< 800 W	< 950 W	< 1300 W		
	SMX1700 no ambient +10 °C 80 °C - < 800 W	SMX1700 SMX1701 no yes no no ambient +10 °C ambient -15 °C 80 °C 80 °C - - < 800 W		

Machine

Volume	200 litre
Weight (with cooling)	170 kg
Illumination	Halogen (2 × 10 W)
Operating menu in	English, French, German, Spanish, Italian
Interface, standard	CAN-Bus
Interface, optional	USB, Ethernet, digital, analogue
Ambient temperature	10 °C up to 35 °C

Temperature

Setting, digital	0.1 °C
Accuracy, absolute	± 0.30 °C (37 °C)
Principle of sensor	Pt-100
Power of heating	500 W
Power of cooling	90155 W
Air circulation	160 m³/h

Shaking unit

Tray, size	EX (500 x 420 mm)
Loading, maximum	25 kg
Setting, digital	1 rpm
Accuracy, absolute	± 0.1 rpm
Timer	1s 999 h
Acceleration	controlled
Active brake	adjustable
Stop on position	adjustable
	Speed
* orbital, Ø 12.5 mm	20500 rpm
* orbital, Ø 25.0 mm	20400 rpm
* orbital, Ø 50.0 mm	20300 rpm
* linear 12.5 mm	20400 rpm
* linear 25.0 mm	20300 rpm
* linear 50.0 mm	20200 rpm
* can be changed	

Humidity	(SMX1703)	
max. at 2555 °C	85 % r.h.	
Setting, digital	1 % r.h.	
Accuracy, absolute	± 2 % r.h.	
Principle of sensor	capacitive	
Water refill	automatic	
Water heater	180 W	
Door heater	90 W	

CO ₂	(SMX1034)				
Principle of sensor	Infrared, NDIR				
Measuring range	020 % CO ₂				
Setting, digital	0.1 %				
Accuracy, absolute	± 0.42 % at 20 % CO ₂				
Non-linearity	< 0.1 %				
Temperature range	560 °C				
CO ₂ -supply	max. 1 bar overpressure				

Mains connection

SMX1021:	220-240 V / 50-60 Hz
SMX1022:	190-210 V / 50-60 Hz
SMX1023:	110-120 V / 50-60 Hz
SMX1024:	95–105 V / 50–60 Hz

Tray siz	e mm	Flas	k size i	n ml												
		25	50	100	150	200	250	300	500	1000	1500	2000	3000	4000	5000	6000
E	420 x 420	81	50	39	30	20	18	15	12	9	5	5	4	2	2	1
EX	500 x 420	90	62	42	36	27	22	21	14	9	8	6	4	3	2	2
EU	420 x 420	80	49	36	26	24	20	18	14	9	5	5	4	2	2	1
EXU	500 x 420	90	56	45	35	27	24	22	16	10	6	5	5	3	2	2

ISF1-X



Shaking
Heating
Lighting
F size tray 800 x 420 mm
Stackable, max 3 units
Pedestal for 1 or 2 units, option
Cooling, option
Controlled humidity, option
Heated window, with controlled humidity
Blackened window, option
Controlled CO ₂ , option
UV, option
Photosynthesis, option
Pull-out tray, option
Dual table, option
Stationary tray, option
ISIS software, option
IQ-OQ, option

And much more ...

Very reliable electro-magnetic direct drive

All stainless steel interior

Foamed insulation

Hermetically sealed double glazed window

User-friendly operation (for each parameter it's own control)

Energy conscious drive and cooling system

Easy to stack, without use of any special stacking gadgets or tools

A 5 YEAR WARRANTY

Dimensions ISF1-X

measurements in mm







Technical data	SMX1500	SMX1501	SMX1503		
Refrigerator	no	yes	yes		
Humidity control	no	no	yes		
Temperature minimum	ambient +10 °C	ambient –15 °C	ambient –15 °C		
Temperature maximum	80 °C	80 °C	80 °C		
Humidity maximum	-	_	85 % r.h.		
Power consumption	< 1300 W	< 1500 W	< 2000 W		

Machine

350
210 kg
Halogen
English, French, German, Italian, Spanish
CAN-Bus
USB, Ethernet, digital, analogue
10 °C up to 35 °C

Temperature

Setting, digital	0.1 °C
Accuracy, absolute	± 0.30 °C (37 °C)
Principle of sensor	Pt-100
Power of heating	1000 W
Power of cooling	155270 W
Air circulation	300 m³/h

Shaking unit

Tray, size	F (800×420 mm)
Loading, maximum	25 kg
Setting, digital	1 rpm
Accuracy, absolute	± 0.1 rpm
Timer	1s 999 h
Acceleration	controlled
Active brake	adjustable
Stop on position	adjustable
Shaking motion	Speed
* orbital, Ø 12.5 mm	20500 rpm
* orbital, Ø 25.0 mm	20400 rpm
* orbital, Ø 50.0 mm	20300 rpm
* linear 12.5 mm	20400 rpm
* linear 25.0 mm	20300 rpm
* linear 50.0 mm	20200 rpm
* can be changed	

Humidity	(SMX1503)	
max. at 2555 °C	85 % r.h.	
Setting, digital	1 % r.h.	
Accuracy, absolute	± 2 % r.h.	
Principle of sensor	capacitive	
Water refill	automatic	
Water heater	300 W	
Door heater	100 W	

CO2	(SMX1034)
Principle of sensor	Infrared, NDIR
Measuring range	020 % CO ₂
Setting, digital	0.1 %
Accuracy, absolute	\pm 0.42 % at 20 % CO_2
Non-linearity	< 0.1 %
Temperature range	560 °C
CO ₂ -supply	max. 1 bar overpressure

Mains

SMX1021:	220–240 V / 50–60 Hz
SMX1022:	190–210 V / 50–60 Hz
SMX1023:	110–120 V / 50–60 Hz
SMX1024:	95–105 V / 50–60 Hz

Tray size mm	Flask	Flask size in ml													
		25	50	100	150	200	250	300	500	1000	1500	2000	3000	4000	5000
F	800 x 420	153	100	74	60	40	40	30	26	16	12	9	8	5	4
FU	800 x 420	113	100	72	50	44	40	37	27	16	12	9	8	5	4



ISF4-X

Shaking, up to 4 (5) shaking units
Heating
Lighting
F size tray 800 x 420 mm
Cooling, option
Controlled humidity, option
Heated window, with controlled humidity
Blackened window, option
Controlled CO ₂ , option
UV, option
Photosynthesis, option
Pull-out tray, option
Dual table, option
Stationary tray, option
Cover for control, option
ISIS software, option
IQ-OQ, option

And much more ...

Dimensions ISF4-X

measurements in mm



Very reliable electro-magnetic direct drives

All stainless steel interior

Foamed insulation

Hermetically sealed double glazed windows

User-friendly operation (for each parameter it's own control)

Energy conscious drives and cooling system

Large shaking capacity on small floor space

A 5 YEAR WARRANTY

Technical data	SMX1600	SMX1601	SMX1603	
Refrigerator	no	yes	yes	
Humidity control	no	no	yes	
Temperature minimum	ambient +10 °C	ambient –15 °C	ambient –15 °C	
Temperature maximum	80 °C	80 °C	80 °C	
Humidity maximum	_	_	85 % r.h.	
Power consumption	< 1700 W	< 2000 W	< 2600 W	

Machine (incubator)

800 litre
520 kg (with cooling)
2 fl lamps
English, French, German, Italian, Spanish
CAN-Bus
USB, Ethernet, digital, analogue
10 °C up to 35 °C

Temperature

Setting, digital	0.1 °C
Accuracy, absolute	± 0.30 °C (37 °C)
Principle of sensor	Pt-100
Power of heating	1000 W
Power of cooling	250420 W
Air circulation	700 m³/h

Shaking unit SF-X	(SMX1610)
Tray, size	F (800×420 mm)
Loading, maximum	25 kg
Setting, digital	1 rpm
Accuracy, absolute	± 0.1 rpm
Timer	1s 999 h
Acceleration	controlled
Active brake	adjustable
Stop on position	adjustable
Shaking unit-weight	55 kg each.
Shaking motion	Speed
* orbital, Ø 12.5 mm	20500 rpm
* orbital, Ø 25.0 mm	20400 rpm
* orbital, Ø 50.0 mm	20300 rpm
* linear 12.5 mm	20400 rpm
* linear 25.0 mm	20300 rpm
* linear 50.0 mm	20200 rpm
* can be changed	

85 % f.fl.
1 % r.h.
+- 2 % r.h.
capacitive
automatic
300 W
220 W

CO ₂	(SM1034)
Principle of sensor	infrared, NDIR
Measuring range	020 % CO ₂
Setting, digital	0.10 %
Accuracy, absolute	+- 0.42 % at 20 % CO ₂
Non-linearity	< 0.1 %
Temperature range	560 °C
CO ₂ -supply	max. 1 bar overpressure

Mains

SMX1021	220-240 V / 50-60 Hz
SMX1022	190–210 V / 50–60 Hz

Tray si	ze mm	Flask size in ml														
		25	50	100	150	200	250	300	500	1000	1500	2000	3000	4000	5000	6000
F	800 x 420	153	100	74	60	40	40	30	26	16	12	9	8	5	4	3
FU	800 x 420	113	100	72	50	44	40	37	27	16	12	9	8	5	4	4

Our motto being, to build the worlds most reliable shaking machines.

Just tell us your requirements! Send us a drawing, or better still, send us a sample of the container that needs shaking and we will build the perfect holder.

Every kind of platform to shake strangely formed bottles with extruding rubber valves and plastic tubing connected to other containers have been manufactured und supplied to satisfied customers.

Custom-made accessories, an every-day occurrence for us.



LS-X Lab-Shaker

Very reliable and sturdy bench shaking machine.

Magnetic, direct d.c. drive built for continuous, maintenance free operation.

Extremely low energy consumption.

Technical data	Lab-Shaker LS-X SMX1200
1 × Tray, size	E (420×420 mm)
or	EX (500×420 mm)
or	F (800×420 mm)
Loading, maximum	25 kg
Operating menu in	English, French, German, Italian, Spanish
Interface, standard	CAN-Bus
Interface, optional	USB, Ethernet, digital, analogue
Ambient temperature	0 °C up to 60 °C
Consumption, maximum	65 W (130 W with high torque drive SMX1031)
Consumption, typical	25 W
Weight	58 kg

Load, typical up to 25 kg.

Orbital or linear movement.

A 5 year warranty

Dimensions LS-X Lab-Shaker

measurements in mm





00	204	222
22		
52	•	
8		

Applicable for both types, LS-X and ES-X

Setting, digital	1 rpm	Acceleration	controlled
Accuracy, absolute	± 0.1 rpm	Active brake	adjustable
Timer	1s 999h	Stop on position	adjustable
Shaking motion	Speed	Mains connection	
* orbital, Ø 12.5 mm	20500 rpm	SMX1021:	220-240 V / 50-60 Hz
* orbital, Ø 25.0 mm	20400 rpm	SMX1022:	190-210 V / 50-60 Hz
* orbital, Ø 50.0 mm	20300 rpm	SMX1023:	110- 20 V / 50-60 Hz
* linear 12.5 mm	20400 rpm	SMX1024:	95–105 V / 50–60 Hz
* linear 25.0 mm	20300 rpm		
* linear 50.0 mm	20200 rpm		
*can be changed			



ES-X Lab-Shaker

The ES-X is a specially designed shaker for installation in incubators.

Intended for working in high temperatures and high humidity.

Motor casing made of stainless steel

Very reliable, hard working and maintenance free magnetic drive made for continuous operation

Technical data	Lab-Shaker ES-X SMX1300
1 x Tray, size	E (420×420 mm)
or	EX (500×420 mm)
or	F (800×420 mm)
Loading, maximum	25 kg
Operating menu in	English, French, German, Italian, Spanish
Interface, standard	CAN-Bus
Interface, optional	USB, Ethernet, digital, analogue
Ambient temperature	–20 °C up to 80 °C 95 % r.H.
Control unit	0 °C up to 60 °C
Consumption, maximum	65 W
	130 W with high torque drive SMX1031
Consumption, typical	25 W
Weight	60 kg

Extremely low energy consumption.

Suitable for custom-made shakers

Special version for robotics

A 5 year warranty

Dimensions ES-X Lab-Shaker

measurements in mm



Tray s	ize mm	Flask	size in	ml												
		25	50	100	150	200	250	300	500	1000	1500	2000	3000	4000	5000	6000
E	420×420	81	50	39	30	20	18	15	12	9	5	5	4	2	2	1
EX	500 × 420	90	62	42	36	27	22	21	14	9	8	6	4	3	2	2
F	800×420	153	100	74	60	40	40	30	26	16	12	9	8	5	4	3
EU	420×420	80	49	36	26	24	20	18	14	9	5	5	4	2	2	1
EXU	500×420	90	56	45	35	27	24	22	16	10	6	5	5	3	2	2
FU	800×420	113	100	72	50	44	40	37	27	16	12	9	8	5	4	4



Rack System plenty of space

An adaptable and space saving shaker system for environmental rooms, laboratories, corridors etc.

Very reliable electro-magnetic direct drives

Rack and shaking units made of stainless steel

Size and configuration can be altered at any given time

Can be used in humidified rooms due to hermetically sealed electronic parts

Dimensions Rack System

measurements in mm



- F size tray 800×400 mm
- Pull-out trays, option
- Dual table, option
- Stationary trays, option
- Photosynthesis, option
- ISIS software, option
- IQ-OQ, option

And much more ...



Technical data	SBM SMX1900, SEM SMX1901
Weight SBM	54 kg
Weight SS-X	60 kg
Operating menu in	English, French, German, Italian, Spanish
Interface, standard	CAN-Bus
Interface, optional	USB, Ethernet, digital, analogue
Ambient temperature	0 °C up to 60 °C
Consumption, maximum	240 W (4 machines, max. Acceleration)
Consumption, maximum	480 W (4 machines with high torque drive)
Consumption, typical	50 W (4 machines)

Shaking unit SS-X	SMX 1910	
Tray, size	F (800×420 mm)	
Loading, maximum	25 kg	
Setting, digital	1 rpm	
Accuracy, absolute	± 0.1 rpm	
Timer	1s 999 h	
Acceleration	controlled	
Active brake	adjustable	
Stop on position	adjustable	

Shaking m	notion	Speed	Mains
* orbital, Ø	12.5 mm	20500 rpm	SMX1021: 220-240 V / 50-60 Hz
* orbital, Ø	25.0 mm	20400 rpm	SMX1022: 190-210 V / 50-60 Hz
* orbital, Ø	50.0 mm	20300 rpm	SMX1023: 110-120 V / 50-60 Hz
* linear	12.5 mm	20400 rpm	SMX1024: 95-105 V / 50-60 Hz
* linear	25.0 mm	20300 rpm	
* linear	50.0 mm	20200 rpm	
* can be ch	nanged		
			Common power supply for 4 shaking units, 24 VAC between

Common power supply for 4 shaking units. 24 VAC between rack-shaking units only.

Tray size mm		Flask size in ml														
		25	50	100	150	200	250	300	500	1000	1500	2000	3000	4000	5000	6000
F	800×420	153	100	74	60	40	40	30	26	16	12	9	8	5	4	3
FU	800 × 420	113	100	72	50	44	40	37	27	16	12	9	8	5	4	4



E-trays with fixed stainless steel clamps: 420 × 420 mm

E-trays with fixed stainless steel clamps: 420 \times 420 mm

SM320025	E - 25 ml	81 clamps
SM320050	E - 50 ml	50 clamps
SM320100	E - 100 ml	39 clamps
SM320125	E - 125 ml	30 clamps
SM320150	E - 150 ml	30 clamps
SM320200	E - 200 ml	20 clamps
SM320250	E - 250 ml	18 clamps
SM320300	E - 300 ml	15 clamps
SM320500	E - 500 ml	12 clamps
SM321000	E - 1000 ml	9 clamps
SM321500	E - 1500 ml	5 clamps
SM322000	E - 2000 ml	5 clamps
SM323000	E - 3000 ml	4 clamps
SM324000	E - 4000 ml	2 clamps
SM325000	E - 5000 ml	2 clamps
SM326000	E - 6000 ml	1 clamp

EX-trays with fixed stainless steel clamps: 500 × 420 mm

EX-trays with fixed stainless steel clamps: 500 \times 420 mm

SMX320025	EX - 25 ml	90 clamps
SMX320050	EX - 50 ml	62 clamps
SMX320100	EX - 100 ml	42 clamps
SMX320125	EX - 125 ml	36 clamps
SMX320150	EX - 150 ml	36 clamps
SMX320200	EX - 200 ml	27 clamps
SMX320250	EX - 250 ml	24 clamps
SMX320300	EX - 300 ml	21 clamps
SMX320500	EX - 500 ml	14 clamps
SMX321000	EX - 1000 ml	9 clamps
SMX321500	EX - 1500 ml	8 clamps
SMX322000	EX - 2000 ml	6 clamps
SMX323000	EX - 3000 ml	4 clamps
SMX324000	EX - 4000 ml	3 clamps
SMX325000	EX - 5000 ml	2 clamps
SMX326000	EX - 6000 ml	2 clamps



F-trays with fixed stainless steel clamps: 800 × 420 mm

F-trays with fixed stainless steel clamps: 800 x 420 mm

SM330025	F - 25 ml	153 clamps
SM330050	F - 50 ml	100 clamps
SM330100	F - 100 ml	74 clamps
SM330125	F - 125 ml	60 clamps
SM330150	F - 150 ml	60 clamps
SM330200	F - 200 ml	40 clamps
SM330250	F - 250 ml	40 clamps
SM330300	F - 300 ml	30 clamps
SM330500	F - 500 ml	26 clamps
SM331000	F - 1000 ml	16 clamps
SM331500	F - 1500 ml	12 clamps
SM332000	F - 2000 ml	9 clamps
SM333000	F - 3000ml	8 clamps
SM334000	F - 4000 ml	5 clamps
SM335000	F - 5000 ml	4 clamps
SM336000	F - 6000 ml	3 clamps

C-trays with fixed stainless steel clamps: 800 × 660 mm

C-trays with fixed stainless steel clamps: 800 x 660 mm

SM340025	C - 25 ml	238 clamps
SM340050	C - 50 ml	153 clamps
SM340100	C - 100 ml	116 clamps
SM340125	C - 125 ml	96 clamps
SM340150	C - 150 ml	96 clamps
SM340200	C - 200 ml	75 clamps
SM340250	C - 250 ml	65 clamps
SM340300	C - 300 ml	55 clamps
SM340500	C - 500 ml	42 clamps
SM341000	C - 1000 ml	24 clamps
SM341500	C - 1500 ml	18 clamps
SM342000	C - 2000 ml	15 clamps
SM343000	C - 3000 ml	11 clamps
SM344000	C - 4000 ml	8 clamps
SM345000	C - 5000 ml	6 clamps
SM346000	C - 6000 ml	6 clamps



E-Universal tray: 420 × 420 mm

E-Universa	l tray, 420	× 420 mm,	Capacity	Erlenmeyer flasks:
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25 ml	80 clamps	
50 ml	49 clamps	
100 ml	36 clamps	
125 ml	26 clamps	
150 ml	26 clamps	
200 ml	24 clamps	
250 ml	20 clamps	
300 ml	18 clamps	
500 ml	14 clamps	
1000 ml	9 clamps	
1500 ml	5 clamps	
2000 ml	5 clamps	
3000 ml	4 clamps	
4000 ml	2 clamps	
5000 ml	2 clamps	
6000 ml	1 clamp	

EX-Universal tray: 500 × 420 mm

EX-Universal tray, 500 × 420 mm,	Capacity Erlenmeyer flasks:
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25 ml	90 clamps	
50 ml	56 clamps	
100 ml	45 clamps	
125 ml	35 clamps	
150 ml	35 clamps	
200 ml	27 clamps	
250 ml	24 clamps	
300 ml	22 clamps	
500 ml	16 clamps	
1000 ml	10 clamps	
1500 ml	6 clamps	
2000 ml	5 clamps	
3000 ml	5 clamps	
4000 ml	3 clamps	
5000 ml	2 clamps	
6000 ml	2 clamps	



F-Universal tray: 800 × 420 mm

F-Universal tray, 800 × 420 mm,	Capacity Erlenmeyer flasks:
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113 clamps	
100 clamps	
72 clamps	
50 clamps	
50 clamps	
44 clamps	
40 clamps	
37 clamps	
27 clamps	
16 clamps	
12 clamps	
9 clamps	
8 clamps	
5 clamps	
4 clamps	
4 clamps	
	113 clamps100 clamps72 clamps50 clamps50 clamps44 clamps40 clamps37 clamps27 clamps16 clamps12 clamps9 clamps8 clamps5 clamps4 clamps4 clamps

C-Universal tray: 800 × 660 mm

C-Universal tray, 800 × 660 mm, Capacity Erlenmeyer flasks:

25 ml	175 clamps	
50 ml	143 clamps	
100 ml	88 clamps	
125 ml	99 clamps	
150 ml	96 clamps	
200 ml	64 clamps	
250 ml	58 clamps	
300 ml	56 clamps	
500 ml	42 clamps	
1000 ml	20 clamps	
1500 ml	16 clamps	
2000 ml	12 clamps	
3000 ml	11 clamps	
4000 ml	8 clamps	
5000 ml	6 clamps	
6000 ml	6 clamps	

All the information on U-trays is without guarantee due to the variation in the flask size of different manufacturers!

Swiss Made since 1949 a 5 year warranty

Accessories for every application:

Trays to hold any kind of flasks, universal trays made of anodised aluminium with M4 treads or trays with fixed stainless steel clamps for Erlenmeyer flasks, or Fernbach flasks, test-tube holders, microtiter or deep well plates or any other kind of container.

Trays with a washable self sticking mat for shaking of Erlenmeyer flasks with speeds under 200 rpm. Trays with horizontal rubber covered bars or trays for separating vessels.

Clamps from 25 ml to 6000 ml or adjustable test-tube holders. Our specialty being custom-made shakers or accessories.

SWISS MADE SINCE 1949

Although Kühner Shakers are maintenance free, spare parts are stocked by our distributors, or can directly be shipped from our Swiss factory. All Kühner Shakers are entirely designed and manufactured in Switzerland.

A 5 year warranty







Universal trays made of anodised aluminium 4 mm thick with 4 mm threads:

SM3002	EU	tray (420×420 mm)
SMX3002	EUX	tray (500 × 420 mm)
SM3003	FU	tray (800×420 mm)
SM3004	CU	tray (800 × 660 mm)

Clamps for Erlenmeyer flasks:

SM310025	Clamp U - 25
SM310050	Clamp U - 50
SM310100	Clamp U - 100
SM310125	Clamp U - 125
SM310150	Clamp U - 150
SM310200	Clamp U - 200
SM310250	Clamp U - 250
SM310300	Clamp U - 300
SM310400	Clamp U - 400
SM310500	Clamp U - 500
SM311000	Clamp U - 1000
SM311500	Clamp U - 1500
SM312000	Clamp U - 2000
SM313000	Clamp U - 3000
SM314000	Clamp U - 4000
SM315000	Clamp U - 5000
SM316000	Clamp U - 6000

Test tube holders:

SM317016	16 mm dia.	24 tubes (15 ml Falcon)
SM317018	18 mm dia.	24 tubes
SM317020	20 mm dia.	18 tubes
SM317025	25 mm dia.	16 tubes
SM317028	28 mm dia.	16 tubes (50 ml Falcon)
SM317030	30 mm dia.	14 tubes
SM317032	32 mm dia.	14 tubes
SM317034	34 mm dia.	14 tubes

Trays for microtiter or deep well plates:

SM3502.22	E-MT.22	12 – 24 plates
SM3502.47	E-MT.47	12 – 48 plates
SM3502.77	E-MT.77	12 – 72 plates
SM3503.22	F-MT.22	24 – 48 plates
SM3503.47	F-MT.47	24 – 96 plates
SM3503.77	F-MT.77	24 – 144 plates
SM3504.22	C-MT.22	35 – 70 plates
SM3504.47	C-MT.47	35 – 140 plates
SM3504.77	C-MT.77	35 – 210 plates

Trays with rubber mat:

SM3602	Tray with rubber mat size EG
SMX3602	Tray with rubber mat size EXK
SM3603	Tray with rubber mat size FG

Trays with self	f sticking mat (black):
SM3702	E-tray with sticky mat EK
SMX3702	EX-tray with sticky mat EXK
SM3703	F-tray with sticky mat FK
SM3704	C-tray with sticky mat CK
SM3714	1 pc sticky mat only, 20 × 20 cm
SM3714E	sticky mat only for E-tray
SM3714EX	sticky mat only for EX-tray
SM3714F	sticky mat only for F-tray

Trays with rubber bars:		
SM4120.4	EA-4QT	size E 4 bars
SMX4120.4	EXA-4QT	size EX 4 bars
SM4130.6	FA-6QT	size F 6 bars
-		

Trays for separating vessels:

SM420250	ES-250	5 vessels 250 ml
SM4202502	ES-250/2	10 vessels 2 layers
SM420500	ES-500	4 vessels 500 ml
SM4205002	ES-500/2	8 vessels 2 layers
SM421000	ES-1000	3 vessels 1000 ml
SM4210002	ES-1000/2	6 vessels 2 layers

SM430250	FS-250	10 vessels 250 ml
SM4302502	FS-250/2	20 vessels 2 layers
SM430500	FS-500	8 vessels 500 ml
SM4305002	FS-500/2	16 vessels 2 layers
SM431000	FS-1000	6 vessels 1000 ml
SM4310002	FS-1000/2	12 vessels 2 layers

Dual table for 2 levels of E, EX or F trays:

SM851303	Dual table	(85 mm)
SM851304	Dual table	(120 mm)
(LT-X up to 25 mm movement only)		
(limited shaking speed)		

Stationary tray/s for LT-X, ISF1-X, ISF4-X and Rack System, for storage of flasks etc.:

SMX1772	LT-X
SMX1572	ISF1-X
SM1672	ISF4-X
SM1672	Rack System

Floor stand for ISF1-X and LT-X:

SM1560	400 mm high for $2 \times ISF1-X$
SM1561	765 mm high for $1 \times ISF1-X$
SMX1760	400 mm high for $2 \times LT-X$
SMX1761	765 mm high for $1 \times LT-X$

Pull-out platform for ease of loading and unloading of ISF1-X, ISF4-X or Rack System:

SM1033	pull-out platform



Just tell us your requirements! Send us a drawing, or better still, send us a sample of the container that needs shaking and we will build the perfect holder.

Every kind of platform to shake strangely formed bottles with extruding rubber valves and plastic tubing connected to other containers have been manufactured und supplied to satisfied customers.















Working with ISIS-X Information System for Intelligent Shakers-ISIS:



ISO 9000-GMP-GLP

When working under these rules, continuous supervision, monitoring, audit trail etc. is required.

Via the necessary interface and the ISIS X software (option) all the influencing parameters, such as speed, temperature, controlled humidity and controlled CO₂, can be fully documented. Also for programming of experiments, calibration of speed, temperature, humidity and CO₂.





EMI-60 external machine interface:

1 RS-232 interface for the connection of one modem for external supervision.

2 analogue outputs with 0...5 volts.

2 relays with switch-over contacts and programmable function for the connection of a process supervision.

1 digital input for a 12...48 volt d.c. or a.c. signal with programmable function and galvanic separation



SMX856000	Software ISIS-X
SMX856010	Interface: CAN-USB (PC)
SMX856020	Interface: CAN-Ethernet (PC)
SMX856030	EMI-60: External machine interface
SMX856040	Universal converter 4–20 mA (in conjunction with EMI-60 only)

New Interfaces to all standard bus sytems available

Kuhner

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Adolf Kühner AG • since 1949

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