

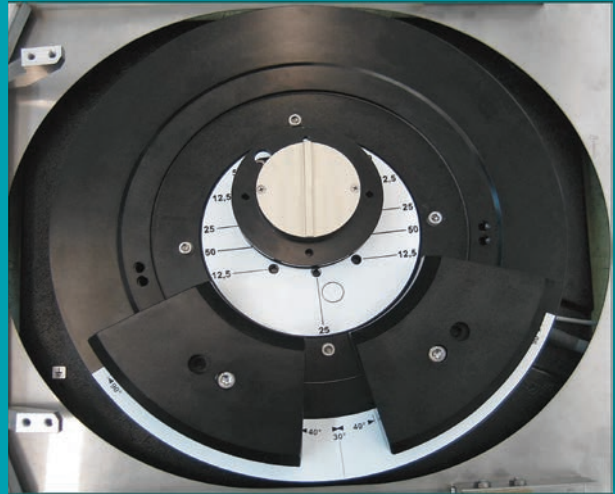
Kuhner shaker

SBM/SS-X (Rack-Shaker)

Extendable rack system
suitable for temperature controlled rooms



1 Direct drive



- + Integrated shaking system with racks and shaking units
- + Robust rack system
- + Ideal for temperature controlled rooms, laboratories and corridors
- + Each shaking unit has its own direct drive
- + Energy efficient drive generates minimal heat

The Kuhner Rack-Shaker SBM/SS-X is a space saving shaker system designed for environmental rooms, laboratories and corridors.

It is an extendable rack system with integrated shaking units made of stainless steel. Size and configuration can be altered at any given time.

Flexible, integrated system

Up to four shaking units (SS-X) can be incorporated into a single rack. The robustly built rack system ensures the shaking units run quietly. The rack system is designed and constructed for maximum flexibility, can be adapted to fit almost any room, and is easily extended. The configuration of the shaking units can be altered at any time with little effort. Each shaking unit is fitted with a speed controller and operates independently. Users are able to choose either orbital or linear motion as well as a suitable shaking diameter for each unit.

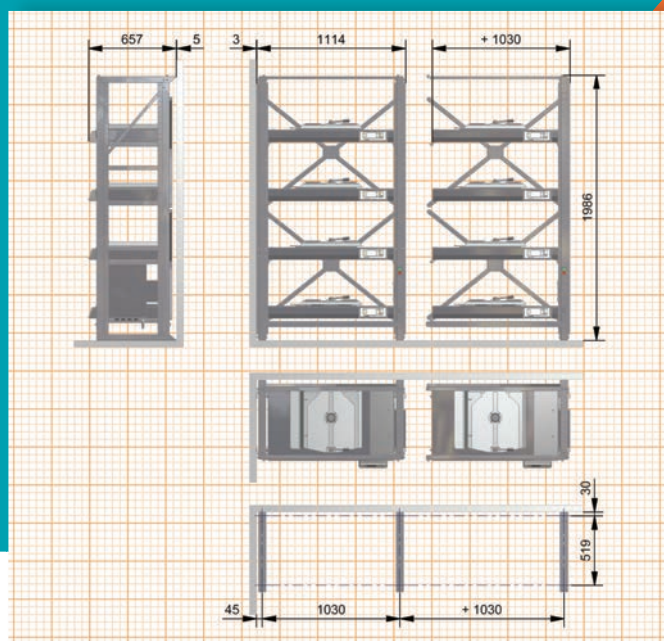
Ideal solution for temperature controlled rooms

The rack system is suitable for use in temperature controlled rooms. Racks and shaking units are made of stainless steel with hermetically sealed electronic parts.

Low energy consumption – low heat generation 1

The Kuhner drive generates minimal heat which is an important factor when using the rack system in temperature controlled rooms.

Dimensions



Technical data

• Technical data SBM: SMX1900, SEM: SMX1901

Weight SBM	54kg
Weight SS-X	60kg
Operation menu in	de, fr, en, it, es
Interface, standard	CAN-Bus
Interface, optional	USB, Ethernet, digital, analogue
Ambient temperature	0°C up to 60°C
Consumption, maximum	240W (4 machines, max. Acceleration)
Consumption, maximum	480W (4 machines with high torque drive)
Consumption, typical	50W (4 machines)

• Shaking unit SS-X SMX1910

Tray, size	F (800x420mm)
Loading, maximum	25kg
Setting, digital	1 rpm
Accuracy, absolute	± 0.5 rpm
Timer	1s ... 999h
Acceleration	controlled
Active brake	adjustable
Stop on position	adjustable

• Shaking motion Speed

* orbital, Ø 12.5mm	20...500 rpm
* orbital, Ø 25.0mm	20...400 rpm
* orbital, Ø 50.0mm	20...300 rpm
* linear, 12.5mm	20...400 rpm
* linear, 25.0mm	20...300 rpm
* linear, 50.0mm	20...200 rpm
* can be changed	

• 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

Technical data subject to change

② Pull-out table

③ BPM-60



Options

Multiple options for your shaker

Pull-out table ②

The pull-out table is designed for the ISF1-X and ISF4-X incubator shakers as well as the Rack System. This remarkable device makes loading and unloading trays much easier.

Dual table

The dual table is an easy and economical way of doubling the shaking capacity. The dual shaking table consists of two levels and each level will accept an F size tray. However, the shaking speed is limited to a maximum of 200 rpm.

Illumination unit for photosynthesis (LED)

The Rack-Shaker can be fitted with LED modules for the cultivation of phototrophic organisms. The control module allows full programming of night/day cycles and variable light intensity.

BPM-60 ③

BPM-60 (Bioprocess Monitoring) is a non-invasive, online measurement of dissolved oxygen and pH in an Erlenmeyer flask.

The system allows for one or both parameters to be recorded in the same flask. The values of dissolved oxygen and/or pH can be monitored simultaneously in eight different flasks. Compared to conventional sample taking, this continuous data logging is automatic and consistent.

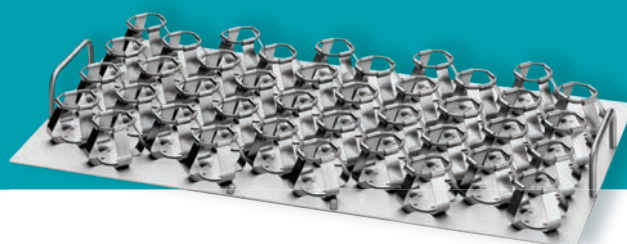
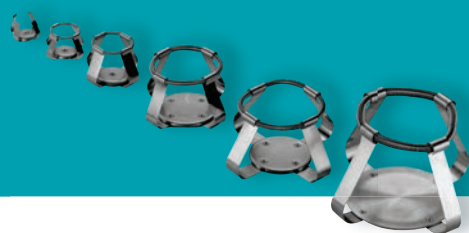
An integrated socket in the shaking table makes simple data communication and power supply possible without the risk of wiring breaking.

IQ-OQ Documentation

IQ-OQ (Installation Qualification and Operation Qualification) is an equipment qualification required for GMP procedures. This service is available from Kuhner and can also be carried out at the customer's premises.

Clamps for Erlenmeyer flasks

Tray F-250 with fixed clamps



Accessories

To suit your application

Universal tray FU

Order number: SM3003

The universal tray can be fitted with clamps for Erlenmeyer flasks, test tube holders, microtiter plates, sticky mats, or custom made holders to suit your requirements.

Rearranging these clamps and holders is quick and simple.

F-tray (800 x 420 mm) with fixed clamps

The clamps are riveted onto this tray and cannot be removed. It offers maximum security and will often hold a larger number of flasks than a universal tray. These trays are available in a variety of flask clamp sizes from 25 to 6000ml.

Clamps for Erlenmeyer flasks

Order number	Flask size in ml	Max. number of clamps per FU
SM310025	25	113
SM310050	50	100
SM310100	100	72
SM310125	125	50
SM310150	150	50
SM310200	200	44
SM310250	250	40
SM310300	300	37
SM310500	500	27
SM311000	1000	16
SM311500	1500	12
SM312000	2000	9
SM313000	3000	8
SM314000	4000	5
SM315000	5000	4
SM316000	6000	4

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

5 F-tray for microtiter plates



F-tray for microtiter plates 5

Kuhner has designed trays specifically for microtiter plates. Handles at the front of the tray open and close the special clamping mechanism allowing plates to be loaded and unloaded. Trays of different heights (22, 47 and 77mm) allow the stacking of up to four microtiter plates. The tray is suitable for all types of plates (deep well, low well, 24, 48 and 96 well).

Order number	Description	Number of microtiter plates
SM3503.22	F-MT.22	24 - 48
SM3503.47	F-MT.47	24 - 96
SM3503.77	F-MT.77	24 - 144

F-tray with rubber mat

Order number: SM3603

The whole tray is covered with a rubber mat and is particularly suitable for shaking containers at low speed (e.g. blood bags).

F-tray with sticky mats

Order number: SM3703

A tray fitted with sticky mats is especially useful for flasks shaken at low speeds (up to 200 rpm). The flask is placed directly on the sticky mat without the need for any other support. Flasks of all sizes can be used. Sticky mats are available individually or in sets and can also be supplied already fitted to a tray. Each mat is 20 x 20cm and can be cut to size. The F-size tray accepts 7 mats.

F-tray with support bars

Order number: SM4130.6

This tray offers an alternative to both clamps and sticky mats and is ideal for tall containers. The tray is covered with a rubber mat and has an upright at each corner. The F-tray is fitted with six cross supports to securely clamp containers.

5 F-tray for centrifuge tubes



F-tray for centrifuge tubes 6

Order number: SM3805

The use of centrifuge tubes (e.g. 50ml Falcon tubes and TPP 50ml tubes) in cell culture screening is well established. This F-tray has a capacity of 120 x 50ml centrifuge tubes (5 racks of 24).

Holders for 600ml TPP tubes are also available.

F-tray for separating vessels

Kuhner has also designed a special tray for shaking separating vessels. This very flexible tray can take vessels of various sizes. It is also possible to add a second layer and double the capacity. Movable retaining rods allow vessels to be installed easily.

Order number	Description	Number of vessels
SM430250	FS-250	10
SM4302502	FS-250/2	20 (2 layers)
SM430500	FS-500	8
SM4305002	FS-500/2	16 (2 layers)
SM431000	FS-1000	6
SM4310002	FS-1000/2	12 (2 layers)

Shelf

Order number: SMX1672

The Rack System can be fitted with a shelf as an alternative to the shaking units, which allows cultivation in petri dishes.

Kuhner Insight Software

The user-friendly Kuhner Insight software was developed for supervision, monitoring, and recording of data. The software is easy to operate.

Interfaces

Kuhner shakers are equipped with a CAN-bus. CAN-USB, CAN-Ethernet, EMI-60 and NET-60 are all well established interfaces.



Shakers & Accessories

www.kuhner.com

Kuhner

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