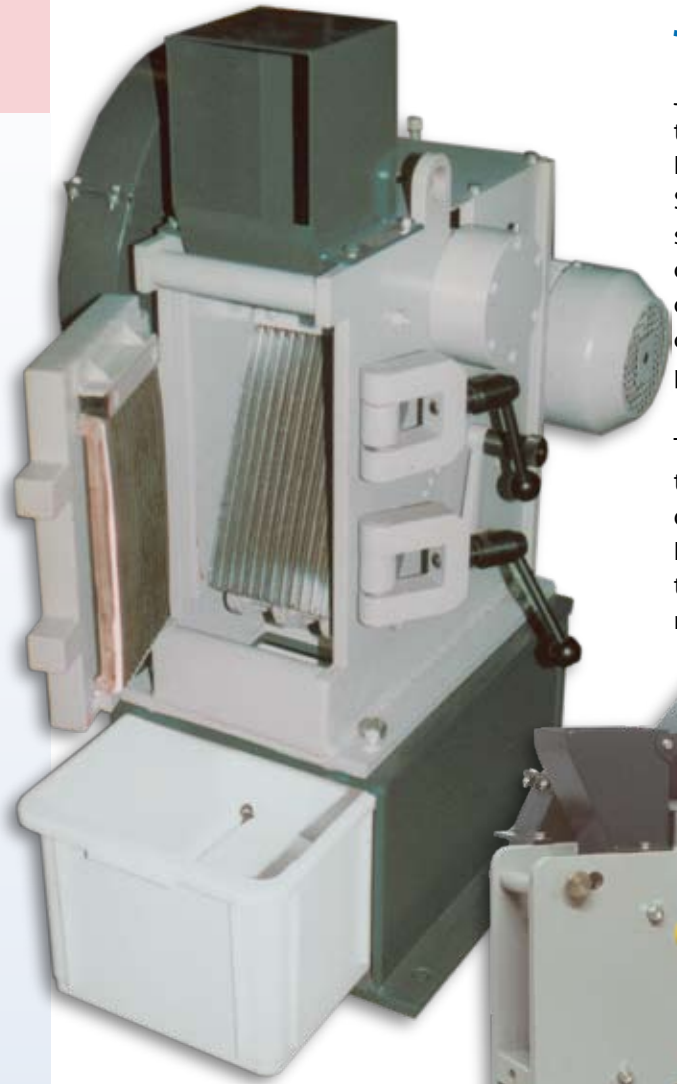
Sample processing in the laboratory

Size reduction
Analysis screens
Dividing & Splitting

SIEBTECHNIK

Size Reduction Machines



Jaw crusher EB 15/10
with base frame

Jaw crusher EB 7/6

Jaw crusher

Jaw crushers are suited for crushing brittle, moderately to very hard materials up to 8.5 Mohs, such as Ore, Slag, Limestone, Aluminiumoxide, Glass, etc..
Size reduction in Jaw crushers occurs in a wedge-shaped space through pressure between a fixed crusher jaw and one attached to an eccentrically moving arm. This kind of moving gives a high throughout for the crusher. The crusher is driven by a V-belt drive and a mounted three phase motor.

The gap between the jaws could be easily - without tools - adjusted and could be changed in short time for different applications on the same crusher.
For inspection or cleaning purpose the front wall of the housing, together with the fixed crusher jaw can removed, without tools.

The jaws could be turned to 180° and the main wear area around the outlet gap can be used again, that halves the costs for wear.
Optional is a base frame with a collecting bin for the crushers up EB 10/8 available.

Jaw crusher		EB 7/6	EB 10/8	EB 15/10	EB 20/12.5
Feed opening	mm	70 x 60	100 x 80	150 x 100	200 x 125
Dimensions (W x H x D) with base frame	mm	296 x 495 x 590	375 x 800 x 750	430 x 955 x 880	686 x 1160 x 1100
Dimensions (W x H x D) without base frame	mm	-	375 x 575 x 750	430 x 685 x 880	686 x 860 x 1100
Weight with base frame	kg	72	200	290	680
Weight without base frame	kg	-	170	240	585
Motor	kW	0.75	1.1	2.2	4.0
Granular feed size (max.)	mm	50	70	90	110
Discharge slot	mm	2 - 8	4 - 12	5 - 15	8 - 20
Throughput	kg/h	15 - 90	80 - 350	100 - 450	400 - 1800

The throughput depends on the size of the discharge slot, the bulk density and the characteristics of the material to be crushed.
The degree of fineness is primarily determined by the setting of the discharge slot. We reserve the right for technical changes.

Roller mill WS 25/15

Double roll crushers are suited to crushing all kinds of brittle Materials up to 8.5 Mohs, such as Ore, Slag, Limestone, Gypsum, Aluminiumoxid, glass.
The material to be crushed is pulled by friction into the gap between the rollers rotating in opposite directions and comminute by pressure and shearing action.

One of the both rollers is equipped with springs to avoid damage or blockage from unbreakable material.
The gap between the both rollers could be step less adjusted by a handrail.

The both rollers are driven by a common V-belt drive and a mounted three phase motor. For inspection and cleaning of the rollers the housing could be easy disassembled.

Optional is a base frame with a collecting bin for the double roll crusher available.

Roller mill WS 25/15 with base frame

Roller mill			WS 25/15
Dimensions (W x H x D)	without base frame	mm	635 x 530 x 1135
	with base frame	mm	635 x 930 x 1135
Weight	without base frame	kg	approx. 275
	with base frame	kg	approx. 380
Crusher rollers	diameter	mm	250
	width	mm	140
Motor	capacity	kW	3.0
Granular feed size (max.)		mm	12
Discharge slot		mm	0.2 - 5.0
Throughput		kg/h	50 - 2000

The throughput depends on the size of the discharge slot, the bulk density and the characteristics of the material to be crushed. The degree of fineness is primarily determined by the setting of the discharge slot. We reserve the right for technical changes.

Size Reduction Machines

Cone crusher KM 65 with divider

Cone crusher

Cone crushers, slow-operation size reduction machines, are perfectly suited to produce cubic particle or to reduce heat-sensitive materials or very hard materials (such as corundum, ferrous Silicium, ore iron ores).

The feed material is crushed between the slowly rotating cone and the static outer grinding ring. By rotating the feed funnel, the size of the slot between cone and ring can be adjusted as required, therefore achieving the fineness of material requested. Maximum final particle sizes of < 2 mm can be achieved due to the tooth system of the fine cone.

There is the option of an installed sample divider for the cone crusher KM 65, so that samples can be both crushed and divided in one step, thereby facilitating laboratory work. The partial volume continuously divided can be chosen to be either 1:2, 1:4 or 1:8.

All grinding elements are made of tungsten carbide, thereby ensuring a long service life.

Tungsten carbide grinding elements

Cone crusher			KM 65	KM 170
Dimensions (W x H x D)	without sample divider	mm	500 x 1270 x 435	1010 x 1680 x 750
	with sample divider	mm	710 x 1270 x 435	-
Weight	without sample divider	kg	120	650
	with sample divider	kg	130	-
Motor		kW	1.5	4.0
Feed particle size		mm	25	25
Final particle size		mm	2 - 10	2 - 10
Throughput		kg/h	60	200

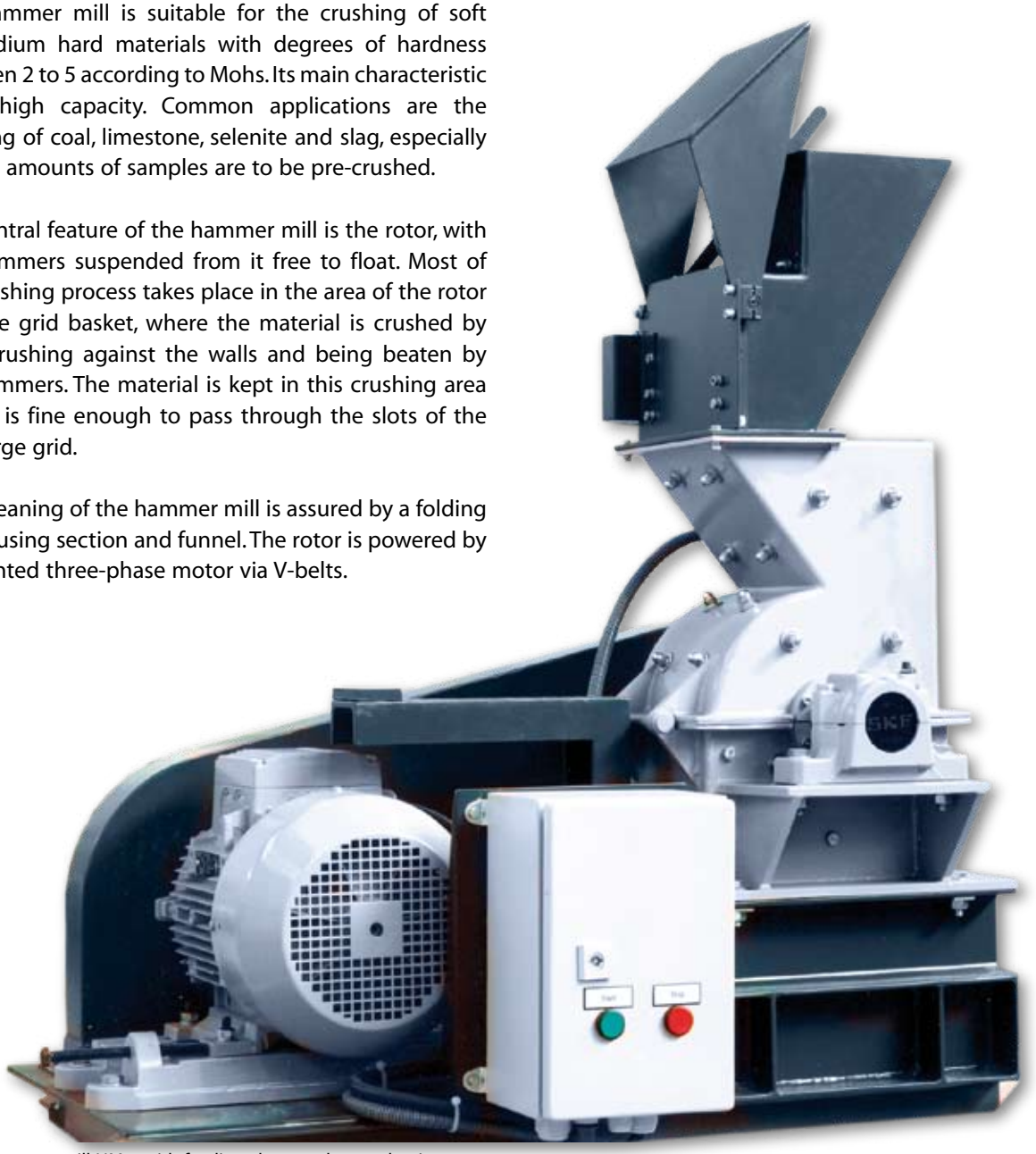
The throughput depends on the size of the discharge slot, the bulk density and the characteristics of the material to be crushed.
The degree of fineness is primarily determined by the setting of the discharge slot. We reserve the right for technical changes.

Hammer mill HM 1

The hammer mill is suitable for the crushing of soft to medium hard materials with degrees of hardness between 2 to 5 according to Mohs. Its main characteristic is its high capacity. Common applications are the crushing of coal, limestone, selenite and slag, especially if huge amounts of samples are to be pre-crushed.

The central feature of the hammer mill is the rotor, with the hammers suspended from it free to float. Most of the crushing process takes place in the area of the rotor and the grid basket, where the material is crushed by both crushing against the walls and being beaten by the hammers. The material is kept in this crushing area until it is fine enough to pass through the slots of the discharge grid.

Easy cleaning of the hammer mill is assured by a folding top housing section and funnel. The rotor is powered by a mounted three-phase motor via V-belts.



Hammer mill HM 1 with feeding chute and control unit

Hammer mill		HM 1
Dimensions (B x H x T)	mm	570 x 900 x 990
Weight	kg	600
Motor	kW	5.5
Feed particle size (max.)	mm	50
Final particle size	mm	2 - 30
Throughput	kg/h	1000

The throughput depends on the size of the discharge slot, the bulk density and the characteristics of the material to be crushed.
We reserve the right for technical changes.

Size Reduction Machines

Disc mill SB 200

Disc mill SB 200

The disc mill can be used for finely crushing soft to hard materials with a Moh`s hardness of up to 8. Crushing is done by shearing and friction action between a stationary and a rotating grinding disc.

The material to be crushed is introduced into the crushing chamber between two discs via a central opening in the stationary grinding disc.

First of all, the material is subjected to preliminary crushing through the coarse structure of the grinding disc inside, before the material again leaves the two discs on the outer diameter. The distance of the two discs to each other can be set without any tools being needed even during continuous operation and this determines the final fineness of the product.

The gap width can be checked by means of a slide rule through an inspection opening. The crushed material is collected in a container underneath the grinding discs. When the machine is being run continuously, this container must be replaced by an optionally available chute.

The swing-type crushing chamber with the stationary grinding disc enables the crushing chamber to be easily accessible and cleaned.

Available as materials for the grinding discs are wear-resistant cast steel, zirconium or carbide metal (tungsten carbide).

Disc mill			**SB 200**
Dimensions (W x H x D)		mm	400 x 430 x 825
Weight		kg	136
Motor	capacity	kW	1.5
Grinding disc diameter		mm	200
Granular feed size (max.)		mm	20
Discharge slot		mm	0.2 - 6
Throughput		kg/h	20 - 150

The throughput depends on the size of the discharge slot, the bulk density and the characteristics of the material to be crushed. The degree of fineness is primarily determined by the setting of the discharge slot. We reserve the right for technical changes.

Vibration mill GSM 06

The vibrating mill GSM is a vibrating mill with exchangeable grinding vessels used to crush brittle and fibrous material down to high degrees of fineness. The size reduction is achieved by impact and friction inside two vibrating grinding vessels which are filled with freely moving grinding balls. The motion of the grinding balls inside the vessels does also entail an intensive homogenization of the material.

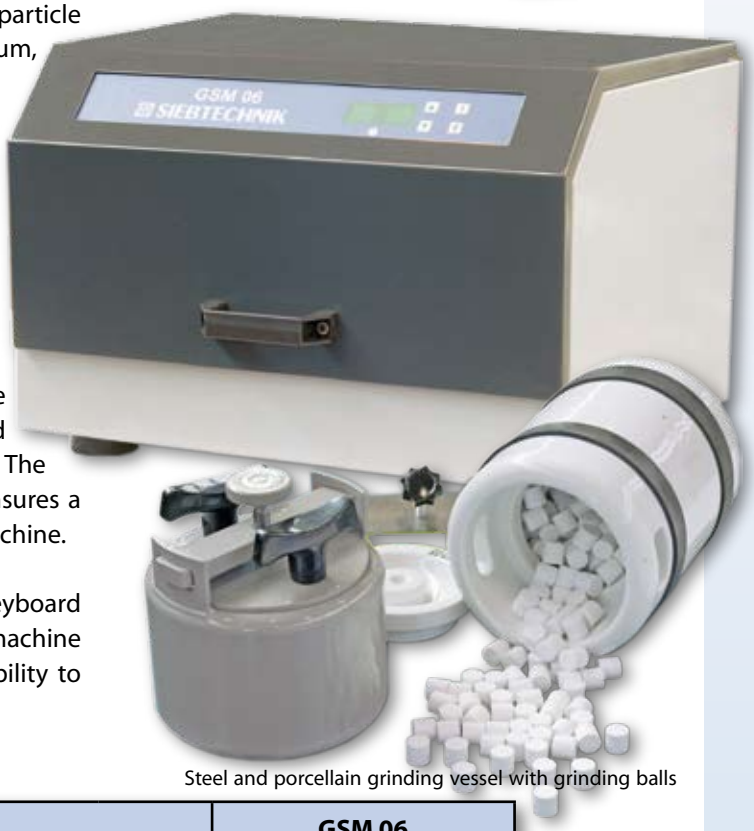
Vibration mill GSM 06

The grinding process can be either dry or wet. The size and kind of the grinding balls determines the final particle size. Normally, the grain size of the feed material should be smaller than 2 mm. The final particle size which can be achieved is smaller than 1 µm, depending on the material.

As the grinding vessels are exchangeable, their material (steel or ceramics) can be chosen so that contamination by abrasion can mostly be avoided. The exchange of the grinding vessel with help of clamping devices is very user-friendly.

The vibrating frame with the maintenance-free unbalance motor is supported on springs and covered by a housing with sound isolation. The counterweight at the bottom of the housing ensures a solid support and a smooth operation of the machine.

The machine is controlled by a foil protected keyboard which is situated in the opening cover of the machine and offers the function "On/Off" and the possibility to determine the duration of the grinding process.



Steel and porcellain grinding vessel with grinding balls

Vibration mill			GSM 06
Dimensions (W x H x D)		mm	570 x 374 x 504
Weight		kg	65
Vessel volume	total	l	2 x 1
	usable	l	2 x 0.3
Vibration intensity		rpm	1500
Vibration width		mm	0 - 6
Capacity		kW	0.19
Operating voltage			400 V, 50 Hz
We reserve the right for technical changes.			

Size Reduction Machines

Laboratory disc mill
TS 750 / 1000

Laboratory disc mill

The laboratory disc mill is used for the quick, dustfree grinding of minerals, organic and ceramic materials, numerous brittle metals to analytical fineness, without loss of fines.

The feed size, depending on grinding barrel size and material should not exceed 5 - 15 mm. Depending on the product, the final particle size for dry grinding is minus 40 µm and down to below 1 µm for wet grinding. Samples up to 250 ml can be processed with the correct grinding barrel.

The material to be ground is put into a grinding vessel chosen to suit the demands of the analysis and sample quantity.

By means of predominantly horizontal vibrations, the material is ground by impact and friction, usually in minutes and at the same time homogenised. With the TS models, the machine will automatically stop when the previously set time has lapsed after which the grinding barrel can be removed. This allows a high degree or repeatability in the sample preparation.

The laboratory disc mill is manufactured in two versions, as T and TS models. The TS version is ready for connecting including all controls, timer and sound absorbing material in a steel housing, mainly for use in the laboratory.
The T-model is the low-cost-version without control-unit and sound proofed housing.

You can chose from the following options, to match the laboratory disc mill to your requirements:

- Pneumatic locking device for grinding vessels (only TS-versions)
- Continuously operating grinding vessels (only T versions)
- Adaptor for using 4 grinding vessel each with 10 ml at the same time
- Pole changing motors to give two operating speeds allowing the use of both steel and agate grinding vessels (which have to operate at a lower speed)

Laboratory disc mill T 750

available grinding containers

Grinding material	Usable volume (ml)
chrome steel, 60 HRC	10 50 100 250 cont.
colomonoy, 60 HRC	10 50 100 250
sintered hardmetal (WC), 85 HRC	10 20 50 100 250 cont.
circonium oxide	100
achate	50 100

Laboratory disc mill		T 750	T 1000	TS 750	TS 1000
Dimensions (W x H x D)	mm	530 x 600 x 530		600 x 1125 x 674	
Weight	kg	150	150	300	300
Motor rating	kW	0,55	0,8	0,55	0,8
We reserve the right for technical changes.					

Analysis Screening Machines

LAVIB 300

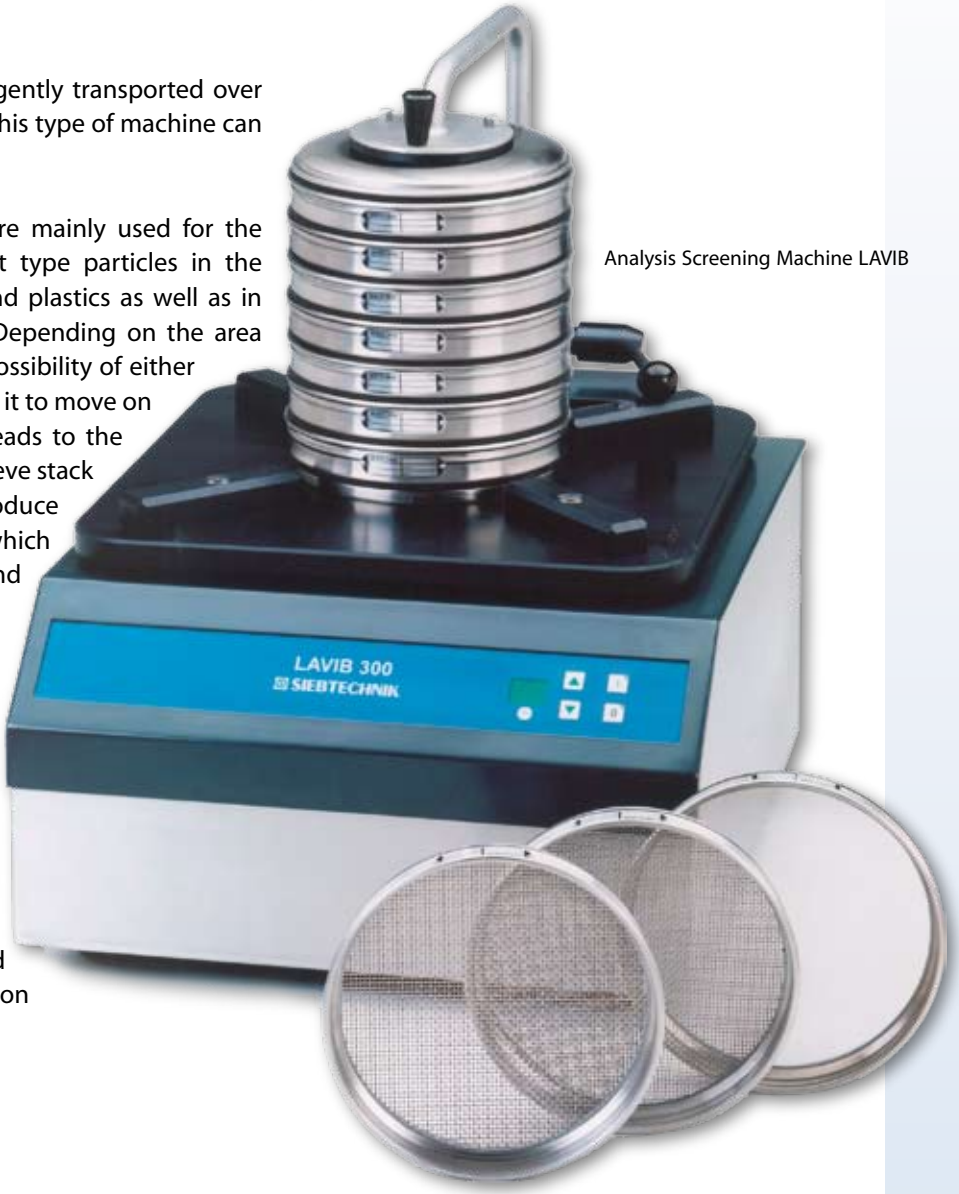
The LAVIB 300 is a screening machine that produces horizontal circular vibrations, suitable for analytical sieves up to 300 mm diameter.

The material to be screened is gently transported over the sieves in a circular motion. This type of machine can only be used for dry screening.

Gyratory screening machines are mainly used for the classification of fibrous, platelet type particles in the processing of wood, tobacco and plastics as well as in breweries and milling plants. Depending on the area of use, the machine offers the possibility of either fixing the sieve stack or allowing it to move on the vibrating table. The latter leads to the centrifugal forces pushing the sieve stack against buffers and thereby introduce additional horizontal impact, which shortens the screen time and reduces pegged material.

The eccenter drive for the vibrating table and the compensation weight are fitted in a practical housing, the weight ensures smooth running and stability of this maintenance free machine.

The keyboard is foil protected and controls the "On/Off" function and
the time switch.



Analysis Screening Machine LAVIB

Analysis screening machine		LAVIB 300
Dimensions (W x H x D)	mm	474 x 663 x 604
Weight	kg	70
Number of screening drums		max. 8 + cover and base
Screening drum diameter	mm	100 - 300
Vibration intensity	min^{-1}	270
Vibration width	mm	30
Drive		gear motor
Connection		1 x 230 V, 50 Hz
We reserve the right for technical changes.		

Analysis Screening Machines

Air-jet sieve SKS 200

SLS 200 is intended for the requirements of modern laboratories in respect of a quick, exact, and reproducible grain-size analysis of all dry materials for sieving.
The range of analysis covers grain sizes of approx. 20 to 4000 µm, the sampling quantity amounts to approximately 100 g depending on the density of the material.
Due to a specially developed pre-warming of the air jet it is also possible to use the SLS 200 for hygroscopic materials.

Air-jet sieve SLS 200

The air-jet which is responsible for the extremely good dispersion is generated by a vacuum cleaner and then conducted through a rotating slot nozzle positioned beneath the screening area. In order to reduce the screening period and to achieve a more exact screening the machine is fitted with a newly developed form of slot nozzle. Through the screen apertures the fines are drawn into the vacuum cleaner's container where they are collected.
The necessary vacuum may be exactly adjusted and is shown on a digital display. The latter also applies to the screening period.

Due to its ergonomically designed stainless-steel housing SLS 200 is suitable for application even under the roughest circumstances.
A wear-resistant and well-planned keyboard covered with foil makes the operation of SLS 200 simple.

The following options are available for the SLS 200:
- Device for preheating of the air
- Cyclone to remove the particles before the vacuum cleaner
- Ionisation device for the reduction of electrostatic forces between particles

Air-jet sieve		**SLS 200**
Dimensions (W x H x D)	mm	326 x 270 x 425
Weight	kg	17.5
Nominal diameter of analytical screens	mm	200
Particle size	µm	20...4000
Drive of the slot nozzle		A.C. gear motor
Connection		230 V, 50 Hz
Main connection, vacuum cleaner connecting branch and coupler socket for the vacuum cleaner are fitted at the back of the device. We reserve the right for technical changes.		

Analysis Screening Machines

ASM 200

The ASM 200 is a gravity-screening machine, the three dimensional screening action has a vertical dominance. Due to this motion, the feed material is distributed evenly over the screen area and the vertical dominance ensures quick separation.

The innovative electronic control on the ASM 200, together with the vibration sensor fitted to the vibrating plate, ensures a constant amplitude irrespective of the loading.

All mechanical parts, the electro-magnetic drive with specially tuned double spring system and the electronic controls are all fitted into the stainless steel housing. The sieve set is easily fitted to the vibrating plate and fixed with the quick locking device.
A clear plastic lid enables you view the screening action.
Wet screening is possible by using special accessories such as the cover with spray water facility and the collecting pan with spout.

The machine is maintenance free. The keyboard is foil protected and controls on/off, amplitude, intermittent operation for difficult samples and timer functions.

Analysis Screening Machine ASM 200

Analysis screening machine		ASM 200
Dimensions (W x H x D)	mm	470 x 630 x 435
Weight	kg	45
Screening drum diameter	mm	200
Number of screening drums		max. 10 incl. collecting pan
Screening opening size	mm	0.020 - 25
Vibration intensity	min^{-1}	3000
Vibration width	mm	0 - 2.5
Drive		electro-magnetic
Operating voltage		1 x 230 V, 50 Hz
Special accessories for wet screening available. We reserve the right for technical changes.		

Analysis Screening Machines

ASM 400

The ASM 400 is a gravity-screening machine with a dominantly vertical screening action, which is generated by a double-eccentric motor drive.

All mechanical components, drive and control electronics are enclosed in a housing mainly made of stainless steel. The sieve set is easily fitted to the vibrating plate and fixed with a quick locking device.

Wet screening is possible by using accessories such as the cover with spray water facility and the collecting pan with spout.

The machine is maintenance free. The keyboard is foil protected and controls on/off and timer functions.

Analysis Screening Machine ASM 400

Analysis screening machine		**ASM 400**
Dimensions (W x H x D)	mm	510 x 1400 x 600
Weight	kg	85
Screening drum diameter	mm	400
Number of screening drums		max. 11* incl. collecting pan
Screening opening size	mm	0,063 - 90
Vibration intensity	min^{-1}	3000
Vibration width	mm	max. 3
Drive		2 eccentric motors
Operating voltage		3 x 400 V, 50 Hz

* Through optional adapters it is possible to install max. 13 screening drums incl. collecting pan.
Special accesories for wet screening available. We reserve the right for technical changes.

Large Analysis Screening Machines

GAS 500 and GAS 1000

The large scale test graders are designed for analysing grain sizes above 40 mm. The sample quantity increases when testing these sizes, by increasing the screen area this is compensated for and representative screening is achieved.
For this purpose we have machines with screen areas of 500 x 500 mm and 1000 x 1000 mm.

The GAS is equipped with a maintenance free double eccenter motor which generates linear vibrations vertically to the screen surface.
The amplitude can be infinitely adjusted by re-positioning the eccentric weights on the motor when the machine is not in operation.

The screen set is rigidly held on the vibrating table by the tensioning device, which can also be supplied as a lifting and tilting device.

This lifting and tilting device makes emptying the screen boxes easier, see picture, as it can be lifted by a hoist and the lowest box only requires tilting for emptying.

GAS 500 and 1000 can be used as vibrating tables without the screen set.

Large analysis screening machine GAS 500 with lift-off and tilt device

Large analysis screening machine			GAS 500	GAS 1000
Stand base		mm	600 x 600	1000 x 1130
Height	without screens	mm	350	400
	with lift-off nad tilt device	mm	570	790
Weight	without screens	kg	150	350
Drive motor			2 imbalance drives	2 imbalance drives
	capacity	kW	2 x 0.150	2 x 0.750
	vibration intensity	min^{-1}	1000	1000
Vibration width		mm	approx. 3.7	approx. 3.7
Material volume		dm^3	max. 50	max. 100
Screening opening sizes		mm	0,2 - 125	4 - 125
Screening area		mm	approx. 500 x 500	approx. 1000 x 1000
Number of screen boxes	without cover and collector	pce.	max. 9	max. 9
We reserve the right for technical changes.				

Testing drums

Solid testing drums

These solidity testing drums are used to determine the tumbler strength in accordance with DIN, ISO and ASTM standards (for example z.B. ISO 556, ISO 3271, DIN EN 1097-2) for coke, iron ore and stones.
They can be used for any other bulk materials where the tumbler strength is of interest.

Solidity testing drums of welded construction are produced in three sizes in accordance with the appropriate standards, they are equipped with the necessary bars, revolution counter and a collecting vessel.

Solid testing drums

Solid testing drums		500/1000	1000/1000	Los Angeles
Dimensions (W x H x D)	mm	1750 x 1550 x 1220	2250 x 1550 x 1220	1760 x 1400 x 1100
Weight	kg	500	650	450
Motor	kW	1.5	1.5	1.5
Drum-inner diameter	mm	1000	1000	711
Drum-inner lenght	mm	500	1000	508
We reserve the right for technical changes.				

Divider 200

Divider 200 is suitable for separating dry and freely flowing products of up to 3 mm into as many as 3 sample collectors. The ratio of each partial volume can be set separately. The material ejected falls into another collector.

Dimensions (W x H x D)		mm	300 x 740 x 300
Weight		kg	approx. 44
Drive			3-phase gear motor
	capacity	W	75
	drive speed	rpm	45
Separator plate diameter		mm	200
Separation ratio	per funnel		1:5.....1:30
Sample collector volume		ml	3 x 500
Ejection collector volume		ml	2000
We reserve gthe right for technical changes.			

Splitter 8/200

This splitter is suitable for simple, rapid separation of freely flowing powders and pellets into 8 sample collectors. The outlets from the feed container can be sealed with a lever to allow the material to be filled, mixed and subsequently separated.

Dimensions (W x H x D)		mm	260 x 360 x 260
Weight		kg	approx. 18
Drive			three-phase gear motor
	capacity	W	95
	electr. connection		230 V / 50 Hz
Feed volume		ml	max. 2000
Granular size		mm	max. 2
Sample collector volume		ml	8 x 200
We reserve gthe right for technical changes.			

Laboratory sample splitter

This splitter is designed for dry, granular, and powdery samples. The entire splitter, including the three collectors, is made of stainless and acid-resistant steel in a sturdy welded construction.

Type		**10/10**	**10/32**
Number of cells		10	32
Cell width	mm	10	10
Ext. Dimensions	mm	325 x 250	325 x 530
Height	mm	370	370

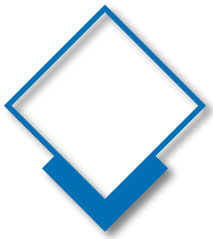
Type		**20/10**	**20/16**	**20/20**
Number of cells		10	16	20
Cell width	mm	20	20	20
Ext. Dimensions	mm	325 x 340	325 x 485	325 x 565
Height	mm	370	370	370

Type		**40/10**	**40/16**	**40/20**
Number of cells		10	16	20
Cell width	mm	40	40	40
Ext. Dimensions	mm	325 x 565	325 x 805	325 x 965
Height	mm	370	370	370

Delivery Program

Screening Machines
Process Equipment

circular motion screens
double counterweight screens
round screens
jigs



Sample Taking
Size Reduction Machines
Laboratory Equipment

individual units and complete installations
for sample taking and preparation
jaw crushers
roller mills
hammer and hammer impact mills
vibrating mills and ball mills
rotary shredders
test grading machines
analytical screening machines
dividers
testing drums

Centrifuges

scroll-screen centrifuges
pusher centrifuges
sliding discharge centrifuges
vibratory centrifuges
decanter centrifuges

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