



**HOSOKAWA**  
**MICRON POWDER SYSTEMS**

**ELECTROLAB**

Your Quality, Our Assurance

# Powder & Particle Analysis



**Electromagnetic  
Sieve Shaker**



**Air Jet Sieve**

## Accurate Particle Size Analysis

### The Mikro Air Jet Sieve™—Model X

is a highly accurate and reliable particle size analyzer designed for determining the particle size distribution of dry powder ranging from 20 µm to 4,750 µm.



#### Features :

- Economical solution to particle size analysis
- Highly accurate & reliable particle size analysis
- Suitable for Chemicals, Minerals, Pharmaceuticals, Food, Plastics & Cosmetic materials
- Determines particle size for dry powders from 20 µm to 4,750 µm
- Automatic data recording and storage with network capability
- Output graphs available in linear, logarithmic, and Rosin-Rammler formats
- Capable of calculating particle size points at 0.01 to 99.99% using the Rosin-Rammler Law
- Save completed analyses for future retrieval direct to computer
- Pneumatic sieving deagglomerates the sample while continuously cleaning test sieve
- Samples 10 to 100 grams/cycle



#### Design :

- Integrated analysis computer with touch screen controls
- User friendly software with step by step instructions
- Automatic pressure differential gauge built in
- 100-230 volt, 50/60 Hz power
- Stainless steel sieve pan & ducting
- Rotating wand disperses the sample across the surface of the screen
- Suitable for use with ASTM Certified test sieve screens
- 16.5" wide x 10.5" deep x 7.5" tall
- Light weight – only 21 lbs
- Long life & minimal downtime
- Ergonomic & user friendly design
- Isolated inlet air & outlet air connections



#### Accessories & Options :

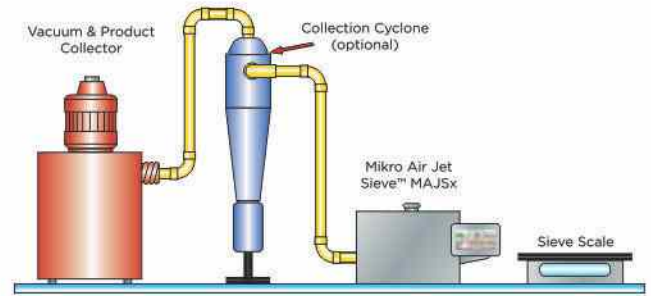
- Cyclone for 98% product recovery over 10 µm
- Sieve adaptor suitable for 200 mm and 203 mm (8 inches) test sieve screens
- Multi-screen adaptor capable of analyzing 3 samples simultaneously
- Vacuum system designed for safe, consistent and reliable performance
- HEPA vacuum available for high containment operation
- Brush, sieve cover and tapping hammer included
- Electronic balance for accurate & complete particle size analysis
- Validation services available upon request

Suitable for Chemicals, Minerals, Food & Pharmaceuticals

**Operation**

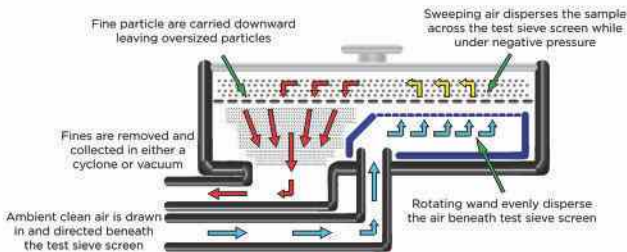
The Mikro Air Jet Sieve— Model X is easy to operate and quickly determines particle size with a short series of sieve test screens. The system utilizes the pneumatic sieving principle that enhances the accuracy and reproducibility of particle size analysis. Use of this device has become a preferred method for such tasks as quality assurance of incoming raw materials and the confirmation of final product specifications.

While negative pressure draws all the particles below a defined particle size down through a sieve screen, a positive airflow is introduced upwards through a rotating wand. This airflow deagglomerates and disperses undersized particles and carries them to the vacuum collector.



Standard MAJS, setup with optional cyclone.

Precise particle size from 20 to 4,750 µm can quickly be determined. This unique rotating wand method also eliminates the need for tapping or brushing and increases reproducibility with controlled measurements of pressure drop and duration. Overall the system is designed to operate cleaner, quieter and requires less space than other types of similar analytical equipment.



## Simple & Easy Operation

### Controls & Touch Screen PLC

The MAJSx features an integrated analysis computer with touch screen controls and display. The system is easy to operate and includes step by step instructions to ensure test performance. The Mikro Air Jet Sieve – Model X automatically calculates particle size and data can be stored, analyzed and compared.

READY TO SIEVE								
START		Sample: REUSE	Pressure: 10 inH <sub>2</sub> O					
		% Mode: PASS						
Input Parameters			Measurements			Calculations		
mesh size	sieving time	empty screen	total wt before	total wt after	wg press	% cumm	% diff	
20	15	123.45	145.67	0.00	0	0.00	0.00	
32	15	0.00	0.00	0.00	0	0.00	0.00	
75	15	0.00	0.00	0.00	0	0.00	0.00	

### Body

The Mikro Air Jet Sieve is an ergonomically designed to make particle analysis more efficient than ever. Constructed in durable cast aluminum, the Mikro Air Jet Sieve frame is lightweight and has a high polish finish, yet is tough enough to withstand frequent use in harsh environments.



### Wand

The wand is a rotating slotted nozzle that focuses incoming air to continuously swipe the test sieve screen dispersing the sample while washing any lodged particles. Additionally, it produces a smooth, constant air flow preventing sample agglomeration.



### Balances

Accurate sieve screen weighing is critical in determining particle size. Hosokawa can provide reliable and proven balances with your particle size analyzer that can be integrated into the process and directly networked with the Mikro Air Jet Sieve – Model X.

### Vacuums

Hosokawa Micron Powder Systems strongly encourages customers to purchase and utilize industrial HEPA filtered vacuums provided through Hosokawa. The vacuums offered are specifically selected to ensure performance and guaranteed results.

### Cyclone

The Hosokawa High Efficiency Cyclone is a laboratory scale particle collection device, often paired with the Mikro Air Jet Sieve. In order to recover up to 98% of materials over 10 µm, the Mikro Air Jet Sieve must be installed prior to the vacuum. This option allows operators to collect materials after particle sizing for further analysis. The cyclone is constructed in stainless steel with a clear glass collection jar. The lid can easily be removed for cleaning and inspection.



## Measure Powder 20 - 4,750 $\mu\text{m}$

### Test Sieve Screens

Part No.	ASTM Mesh	Din ISO	Approx Micron
M390-1023702-CRT	635	20	20
M390-1023701-CRT	500	25	25/27
M390-1023700-CRT	450	32	32
M390-003807-CERT	400	38	38
M390-003808-CERT	325	45	45
M343635	n/a	50	n/a
M390-003809-CERT	270	53	53
M390-003810-CERT	230	63	63
M390-003811-CERT	200	75	75
M343623	n/a	80	n/a
M390-003812-CERT	170	90	90
M343634	n/a	100	n/a
M390-003813-CERT	140	106	106
M390-003814-CERT	120	125	125
M390-003815-CERT	100	150	150
M343636	n/a	160	n/a
M390-003816-CERT	80	180	180
M343413	n/a	200	n/a
M343414	n/a	na	200
M390-003817-CERT	70	212	212
M390-003818-CERT	60	250	250
M390-003819-CERT	50	300	300
M390-003820-CERT	45	355	355
M390-003821-CERT	40	425	425
M390-003822-CERT	35	500	500
M390-003823-CERT	30	600	600
M390-003824-CERT	25	710	710
M390-003825-CERT	20	850	850
M390-003826-CERT	18	1000	1000
M390-003827-CERT	16	1180	1180
M390-005217-CERT	14	1400	1400
M390-004998-CERT	12	1700	1700
M390-003828-CERT	10	2000	2000
M390-005347-CERT	8	2360	2360
M390-860052-CERT	6	2800	3350
M390-004999-CERT	4	4000	4750

### Sieve Screens

Hosokawa Micron Powder Systems only offers spun frame test sieve screens. These screens are highly accurate, supplied with a certificate of conformance, a certified histogram, and meet ASTM-E11 standards. These sieve screens are built to the highest standards possible and are guaranteed to be at least 99.5% accurate down to 20  $\mu\text{m}$ . Hosokawa has a wide selection of sieve screen mesh sizes ranging from 635 mesh up to 4 mesh.



### Multi-Sieve Adaptor (MSA)

A multi-sieve adaptor is available for particle size analysis where test samples need to be smaller than traditional sieve testing or for users that prefer to run fewer test cycles to achieve results. The multi-sieve adaptor can accommodate up to three 63 mm diameter test sieve screens without affecting the particle size analysis.





## Looking for Simple Analysis?

### Micron Air Jet Sieve Basic Model (MAJSb)

The Micron Air Jet Sieve—Basic Model (MAJSb) is an affordable, non-computerized particle size analyzer well suited for harsh environments. The Basic Model uses the same pneumatic operating principle as the MAJS, however this unit is not equipped with a touch screen control or integrated computer for automatic analysis. In the Basic Model, the operator manually calculates the particle size distribution using a simple formula after weighing and sieving each sample on a set of predefined test sieve screens.



Scan for a short demonstration.



- Suitable for Chemicals, Minerals, Pharmaceuticals, Food, Plastics & Cosmetic materials
- Determines particle size for dry powders from 20  $\mu\text{m}$  to 4,750  $\mu\text{m}$
- Economical to own and operate for easy, fast & accurate analysis
- Pneumatic sieving deagglomerates the sample while continuously freeing test sieve of lodged particles for repeatable results
- 110 & 220 volt models available
- Measures 12" wide x 15" deep x 13" tall
- Unit does not include computer or software for automatic calculations and can not be integrated with a computer for data analysis or a balance
- Unit requires sieve screens, vacuum and scale to perform analysis

### Designs, Manufactured and Assembled in the USA

Our air jet sieves are designed, manufactured and assembled in the USA and come with our pledge to performance and guaranteed dependability. Air Jet Sieves have the reputation for accuracy and reliability with thousands of installations worldwide. Hosokawa developed air jet sieving technology in 1957 to quickly determine particle sizes for dry powders.



## 8 or 16 Sieve Capacity Particle Size Analyser



### Tri-dimensional Sifting Motion

- The instrument produces tri-dimensional movement combining a vertical movement with a rotation of the material to be sifted on the surface of the sieve



### 2 Modes of Sifting

- Continuous
- Intermittent (helps to clear blocked apertures)



### Low Maintenance

- Instrument is powered by an electromagnetic drive which has no rotating parts, making it maintenance free and quiet in operation



### Isolation of Vibrations from Work Surface

- Non-metallic springs and anti-vibration mountings are fitted to isolate vibrations from work surfaces and reduce noise levels



### Quality by Design

- The instrument is powered by an electromagnetic drive which has no rotating parts, making it maintenance free and extremely quiet in operation
- Programmable shake time from 1 min to 99 mins
- The vibratory action produced by the power unit moves the sample all over the sieve in a unique way producing faster and more efficient sieving
- Amplitude level of 0.5 mm to 2.00 mm
- 16x2 character alphanumeric display
- Intermittent and continuous shifting motion with 15 programmable levels of amplitude
- The top plate of the sieve shaker has clearly marked calibrated lines to aid visual inspection of the amplitude
- The instrument is fitted with a special clamping device that ensures that the sieves are held firmly and allows them to be quickly removed and replaced
- Suitable for dry and wet sieving



Particle size analysis



Programmable sieving duration



Low noise



Electromagnetic Sieve Shaker



Capacity  
(200 mm dia)

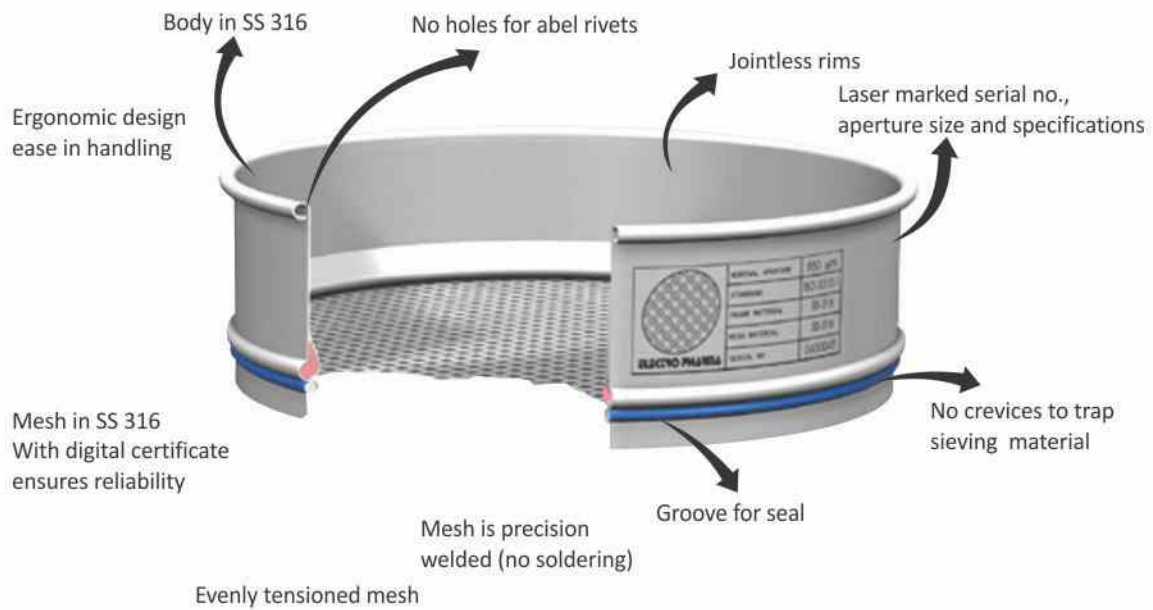


Capacity  
(100 mm dia)



User friendly

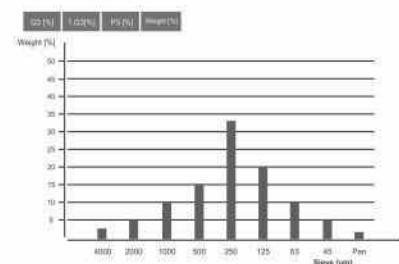
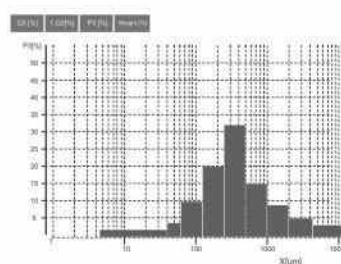
## Advantages of our sieves



Calibration Certificate (optional)



## SieveEasy™ Particle Size Analyzer Software





## Standard accessories



Locking Arm (Horizontal)  
for 200mm Dia Test Sieves  
Part no - 0501A00002



Locking Arm (Horizontal)  
for 100mm Dia Test Sieves  
Part no - 0501A00071



Vertical Rod (Set of 2)  
Part no - 0501A00065

## Optional accessories



Backlight knob to fit  
locking arm (set of 2)  
Part no - 0501A00001



Lid & receiver for 200 mm  
dia test sieves  
Part no - 0501A00004



Lid & receiver for 100 mm  
dia test sieves  
Part no - 0501A00005



Wet sieve attachment  
for 200mm Dia  
Part no - 0501A00006



## Cares and Maintenance

- Clean sieves by sonicating them in water or a special detergent (Eg. deconex<sup>®</sup> 12 basic) to ensure accurate and reproducible sieving results
- It is advised not to run the machine without proper locking and tightening both the locking knobs, this may result in an abnormal sound and can damage the machine

## Specifications

Model	EMS- 8	
		230 Volts
Product code	M.S. : 520100 S.S. : 540100	M.S. : 510100 S.S. : 530100
Dry sieving	Standard	
Mode of operation	Continuous and intermittent	
Intermittent operation	At intervals (0.5 sec)	
Capacity	Up to 8 sieves of 200 mm dia x 50 mm h Up to 16 sieves of 100 mm dia x 25 mm h	
Shake time	Programmable from 1 min to 99 min	
Amplitude level	0.5 mm to 2.00 mm	
Display	16 x 2 character LCD	
Power level	Programmable (from 5 to 20)	
Noise level	<61 dB without sieves at maximum amplitude <71 dB with sieves and material at maximum amplitude	
Power	220/230V AC, 50 Hz, 600 VA	
Dimensions (W x H x D)	312 mm x 339 mm x 270 mm	
Weight	50 Kgs (without sieves)	

## Test Sieve Sizes

200 mm dia x 50 mm h and 100 mm dia x 25 mm h

ISO Nominal  
Aperture  
Supplementary

Sizes R40/3	ASTM E11-01	B. S.S. E11-01
4.00 mm	No. 4	-
3.35 mm	No. 6	No. 5
2.80 mm	No. 7	No. 6
2.36 mm	No. 8	No. 7
2.00 mm	No. 10	No. 8
1.70 mm	No. 12	No. 10
1.40 mm	No. 14	No. 12
1.18 mm	No. 16	No. 14
1.00 mm	No. 18	No. 16
850 µm	No. 20	No. 18
710 µm	No. 25	No. 22
600 µm	No. 30	No. 25
500 µm	No. 35	No. 30
425 µm	No. 40	No. 36
355 µm	No. 45	No. 44
300 µm	No. 50	No. 52
250 µm	No. 60	No. 60
212 µm	No. 70	No. 72
180 µm	No. 80	No. 85
150 µm	No. 100	No. 100
125 µm	No. 120	No. 120
106 µm	No. 140	No. 150
90 µm	No. 170	No. 170
75 µm	No. 200	No. 200
63 µm	No. 230	No. 240
53 µm	No. 270	No. 300
45 µm	No. 325	No. 350
38 µm	-	-
28 µm	-	-

# Tap Density Tester



## Snaplock™ Mechanism

- Two different cylinder holders with Snaplock™ mechanism designed to hold the 100 ml and 250 ml cylinders



## USP Method 1 and USP Method 2

- The instrument has 2 methods:
  - USP Method 1
  - USP Method 2
- The test can be performed in 2 different modes in both test methods
  - USP mode - test will run with set number of taps as per USP requirements
  - User mode - test will run with set number of taps as per user requirements



## Simultaneous Rotating and Tapping Motion

- Minimizes any possible separation of the mass during tapping down



## Free Drop of the Cylinder

- Virtually friction-free bearings ensure a free drop of the cylinder from required height



## Quality by Design

- Complies with USP and ASTM specifications
- Online validation of drops per minute
- Retention of programmed values in the memory of the instrument
- Power failure detection allows remaining test completion on power resumption
- RS-232 serial port can be connected for printing the test report on serial printer and can be transferred to the computer via optional LAN connectivity device



## Report

- Report includes:
  - Test results like Tapped Density, Compressibility Index and Hausner Ratio
  - Time and date on which the test was performed
  - Serial number of the instrument
  - Entry fields for user name and product details



ETD-1020



User Friendly Operation



Results



LAN (optional)



Print

Ideal for measuring the tapped density of powders, granules, pellets, flakes and other substances

## Bulk Density Tester



### Patented Design

Special spring loaded spatula attachment keeping the blade perpendicular to the cup to ensure excess powder removal and prevent packing the powder



Compliance



Spatula Removes  
Excess Powder

### Features

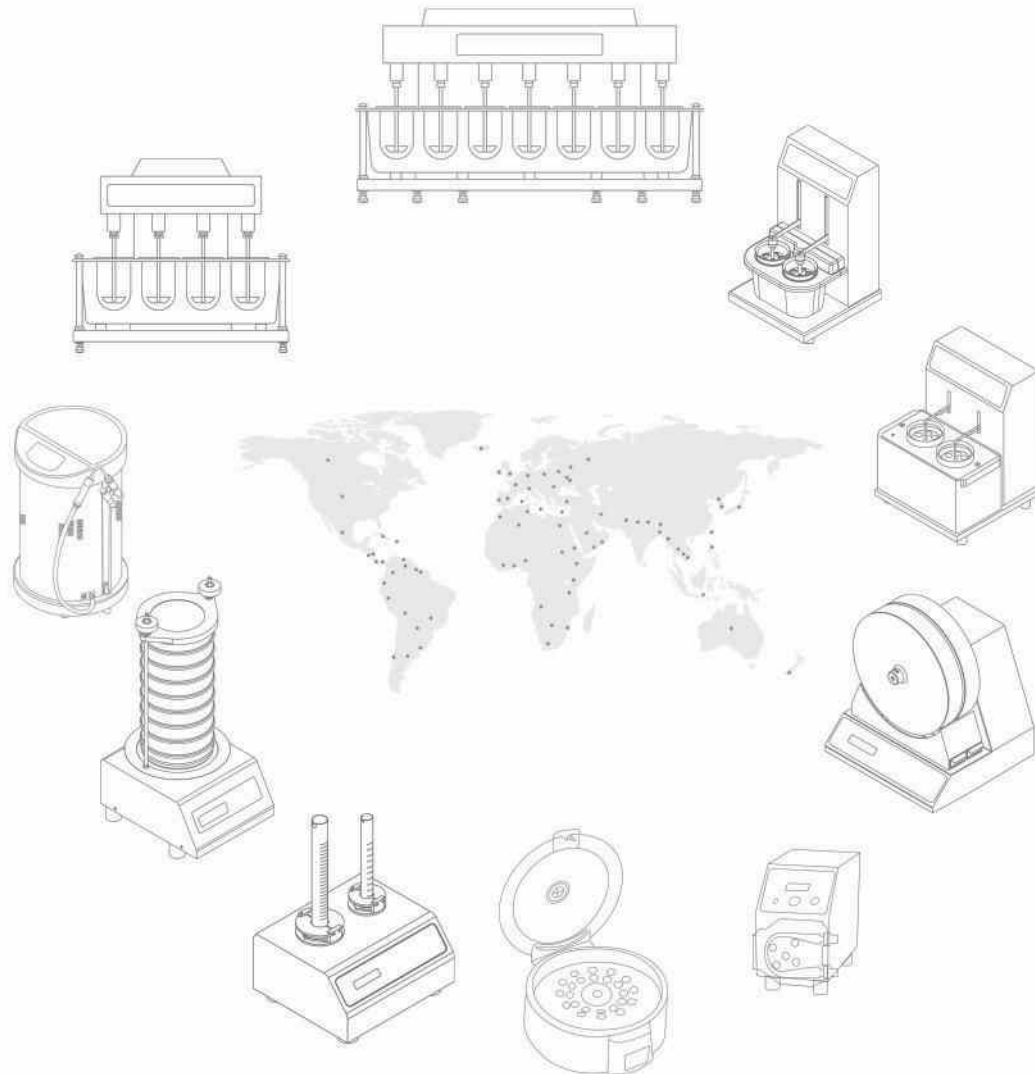
- Complies with USP and ASTM specifications
- Measures the bulk density of fine powders and similar products
- Easy calculation of bulk density in terms of grams per ml
- Useful in calculating powder flow-ability index

## Manual Powder Flow Tester



### Key Features

- Complies with Ph. Eur. specifications
- Provides simple, repeatable flow-ability index of powder and granules
- Easy calculation of angle of repose
- Outflow openings - 10 mm, 15 mm and 25 mm as per Ph. Eur. And



## Our Products

- Complete range of Dissolution Testers • Dissolution Media Preparator • Disintegration Testers • Friability Testers
- Tablet Hardness Testers • Tap Density Tester • Bulk Density Tester • Powder Flow Tester • Leak Testers • Peristaltic Pumps



The information contained in this document is believed to be correct but ELECTROLAB accepts no liability for any errors and reserves the right to alter specifications without notice  
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