

HAYER & BOECKER



DIE DRAHTWEBER

PARTICLE ANALYSIS.

INTO THE FINEST DETAIL WITH HIGHEST PRECISION.





PARTICLE ANALYSIS. PRECISION DOWN TO THE LAST DETAIL.

In many industrial manufacturing and machining processes, only careful analysis of materials and substances can form the basis for achieving the best results. Based on our expertise and more than 125 years of experience in wire fabric technology, Haver & Boecker supplies innovative systems for particle size and shape analysis, which continue to set new standards in functionality, precision and reliability, and guarantee maximum security of investment.

From sand, earth and construction materials to foodstuffs and recycling, from chemicals and plastics to varnishes, paints and special coatings, our analysis systems provide better quality assurance. Haver & Boecker is certified to ISO 9001 and is a leading member of the International Standards Committee for Test Sieves (ISO TC 24).

Users and dealers benefit from the expertise and efficient service of the whole Haver Group, which also includes the world's largest manufacturer of test sieves, W.S. Tyler in the U.S.A. With our combined range of services extending from test sieves & test sieve shakers, to complete sieve analysis systems, we supply everything you need to carry out standardised sieve analyses - all from one source.

Haver & Boecker began producing wire cloth in Hohenlimburg, Germany, in 1887. Today, we are one of the world's leading wire weaving companies with a global network of branches and manufacturing facilities.

Our work is based upon experience, continuous research and development of our products and manufacturing processes, along with the knowledge and ability of our staff. This combination of tradition and innovation allows us to meet exceed the high expectations of our customers.

WHAT WE ANALYSE.



WHAT MAKES US SPECIAL.



SIEVE ANALYSIS. TRADITIONAL AND PROVEN.

Haver & Boecker offers the right test sieve for every screening task. Our range includes robust designs made from sheet metal with square perforations in accordance with ISO 3310-2 for screening road-building stone, concrete additives, gravel, sand, ballast and – with slotted plates in accordance with ISO 5223 – for testing grain. Classic test sieves with wire mesh sieve bottoms are available throughout the entire standard range of mesh sizes from 0.02 mm to 125 mm. Test sieves with electroformed sieve foil are mainly used for hole sizes in the micron range from 5 microns to 100 microns. The electrogalvanically produced nickel foils have round or square holes and are standardised up to 500 microns.



Standards

As measuring instruments, test sieves are subject to the high quality requirements defined in national and international standards. Haver & Boecker offers test sieves with wire mesh, which are in accordance with all common standards: DIN ISO 3310-1, ISO 3310-1, ASTM E11, BS ISO 3310-1. Test sieves with perforated plates in accordance with DIN ISO 3310-2, ISO 3310-2, BS ISO 3310-2. Test sieves with electroformed sieve foil in accordance with DIN ISO 3310-3, ASTM E 161 and ISO 3310-3.



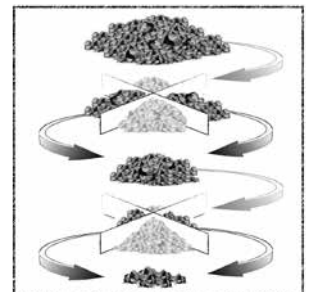
Sieving methods

Haver test sieves are suitable for all common sieving methods: horizontal sieving, three-dimensional sieving, dry and wet sieving, air jet sieving and manual sieving. Haver & Boecker offers a multitude of test sieve shakers and systems for a wide variety of applications and systems, which can be precisely matched to suit special requirements.



Sample division

Sample division is necessary in order to obtain a representative test quantity. The classic method of sample division involves dividing the entire amount of material by quartering the original quantity. In order to simplify the process, Haver & Boecker offers different types of sample splitters as well as rotary sample dividers to obtain particularly precise test quantities.



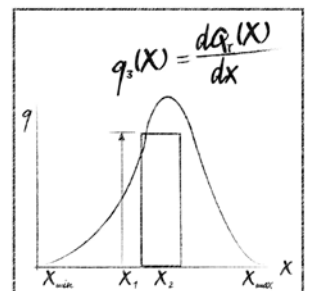
Analysis

Once the representative material samples are available and the appropriate test sieves have been determined, the analysis can be carried out with a sieve shaker. Haver & Boecker test sieve shakers generate a three-dimensional sieving motion for fast and optimally reproducible sieving results. The material to be sieved is accelerated vertically out of the mesh and at the same time distributed over the surface of the sieve in a circular motion. The amplitude is regulated automatically and remains constant, irrespective of the quantity and the installation location.



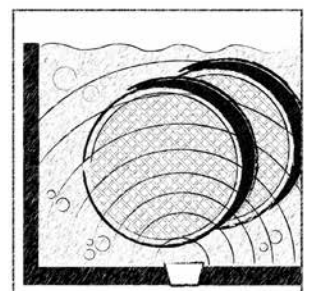
Evaluation

The HAVER CSA software enables PC-aided evaluation of standard sieve analyses. Analyses can thus be evaluated easily and precisely within a short amount time. Data is generated quickly and easily using a HAVER scanning system for the test sieves. The results, graphical representations and documentation materials can be documented for quality assurance purposes and incorporated in statistics and reports.



Cleaning

Clean test sieves are prerequisite for flawless and reproducible sieving results. Near-mesh particles, which are trapped in the sieve mesh, can be removed by tapping the sieve. Ultrasonic cleaning devices ensure thorough, gentle and energy-saving sieve cleaning. Cleaning with brushes or bristles is not recommended.



PREPARING THE SIEVE ANALYSIS. SAMPLE DIVISION AS THE BASIS OF GOOD ANALYSES.

Before carrying out a meaningful sieve analysis from large quantities of material, it is important to obtain a representative material sample. Different sampling methods can be used to obtain sub-samples as a representative picture of the total quantity. Sample division by means of splitters has proven to be a tried and tested method, where the original quantity is divided by closely spaced apertures (riffles) into two collection pans. Half of this is removed and the other half is split down using the same procedure until the correct sample size is reached.

Some applications require a much more precise sample division. With the HAVER RPT Rotating Sample Reducer, a method has been developed for this purpose, which enables an extremely precise sample division.



Sample splitters and sample reducers

Representative test samples can be easily and reliably produced with the help of these devices. The Haver sample splitter forms two representative partial quantities by means of alternately arranged apertures in the splitter head. It is available in two different sizes and with different sized apertures depending on the material to be sieved.



HAYER Sample Splitter RT 6.3 – 12.5



HAYER Sample Splitter RT 25 – 37.5 – 50 – 75



Rotating Sample Reducer HAYER RPT

HAYER RPT Rotating Sample Reducer

The sample reducer produces small but representative sample quantities of solids and suspensions and is combined with high-accuracy analytical measuring instruments. It is used in laboratories for research, development and process monitoring.

Rotating sample reducers combine three dividing methods in one unit and provide the best possible method of sample division available today.

The sample is fed into a dividing cone that emulates the process of quartering and coning. The sample material on its surface is accelerated outwards by rotation and is divided through guide channels into up to 30 individual samples (depending on the model used).

In this way, even sluggish flowing materials such as cement and limestone can be divided with high accuracy.

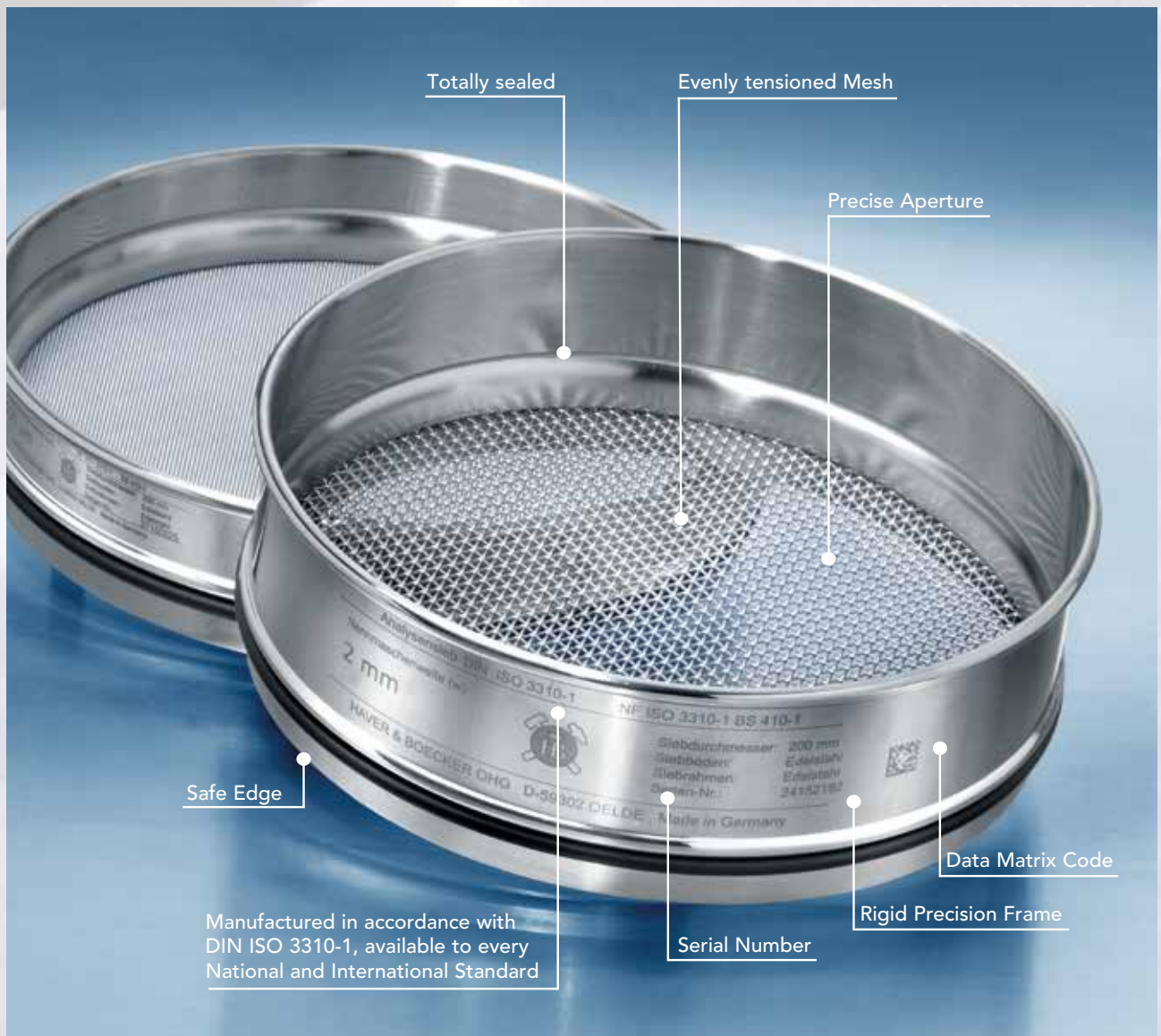


TEST SIEVES. APPROVED MEASURING INSTRUMENTS.

Test sieves for particle size analysis meet the requirements of sieving measuring devices. ISO / IEC Guide 99:2007 defines a 'measuring device' as a device which is used alone or in conjunction with one or more additional measuring devices.

Highly accurate and extremely stable.

All Haver test sieves are manufactured in accordance with current standards and are distinguished by their particularly high accuracy and stability. High-quality frame materials, an extremely stable sieve structure which has been developed in-house, and careful machining guarantee long life and trouble-free operation.





Haver & Boecker offers the right test sieve for every screening task. The particularly smooth surface of their frames prevents cross contamination, and the sieve fabric retains its tension exceedingly well even after intensive use.

Wire mesh

- DIN ISO 3310-1, ASTM E11, ISO 3310-1, BS ISO 3310-1, TYLER Screen Scale
- Mesh sizes from 20 microns to 125 mm
- Diameters from 50 mm to 450 mm

Round perforation

- DIN ISO 3310-2, ISO 3310-2, BS ISO 3310-2
- Hole sizes from 1 mm to 125 mm
- Diameters from 200 mm to 450 mm

Square-perforation

- DIN ISO 3310-2, ISO 3310-2, BS ISO 3310-2
- Hole sizes from 4 mm to 125 mm
- Diameters from 200 mm to 450 mm

Electroformed sieve foil

- DIN ISO 3310-3, ASTM E161, ISO 3310-3
- Mesh sizes from 5 microns to 500 microns
- Diameters from 76.2 mm to 200 mm



HAVER TEST SIEVES.

PRECISION IN ALL SHAPES AND SIZES.

IN ALL SIZES.



50 mm



76.2 mm



100 mm / 120 mm /
150 mm



200 mm / 203 mm=8"



250 mm

IN ALL SHAPES.



Special execution for
Sonic Sifter



Test Sieve for tobacco



Test Sieve for cereals
according to ISO 5223



for ALPINE® Air Jet Sieve
200 LS



for ALPINE® Air Jet Sieve
200 LS-N / AC



for ALPINE® Air Jet Sieve with fully
automatic sieve recognition e200 LS



300 mm / 305 mm = 12"
315 mm



350 mm



400 mm / 450 mm



Test Sieve with square hole plate



Grid Sieve according to DIN EN 933-3



Test Sieve with beechwood frame

International Test Sieve Comparison Table 2018








TEST SIEVES, NOMINAL SIZES OF OPENINGS

125-1 mm

TABLE 1

Internationale Analysensieb-Vergleichstabelle 2018









SIEBBÖDEN FÜR ANALYSENSIEBE (Prüfsiebe) Maschen- bzw. Lochweiten

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--|---------------------------------------|--|---------------------|---------------------|---------------------|---|--|---|---|---|--------------------------|
| ISO 3310 Table 1, Millimetre sizes | | | DEU | DEU | DEU | | USA | | USA | USA | TYLER® |
|  | N |  NF* | <u>DIN</u> | <u>DIN</u> | <u>DIN</u> |  |  |  |  |  | |
| Principal sizes Hauptreihe | Supplementary sizes Nebenreihen | | | | | Standard | U.S. Alternative | Supplementary sizes Nebenreihen | | | |
| R 20/3 | R 20 | R 40/3 | | | | | | | | | |
| Nominal aperture sizes acc. to ISO 565 Nennmaschenweiten nach ISO 565 | | | DIN ISO 3310-1 # | DIN ISO 3310-2 ● | DIN ISO 3310-2 ■ | ASTM E11 # | | ASTM E11 | ASTM E323 ● | ASTM E323 ■ | TYLER Screen Scale ## |
| | | | 125-1 | 125-1 | 125-4 | 125-1 | | 125-1 | 125-1 | 125-3.35 | 26,5-1 |
| w | w | w | w | w | w | w | No. | w | w | w | Mesh |
| 125 | 125 | 125 | 125 | 125 | 125 | 125 | 5 in. | | 125 | 125 | |
| | 112 | | 112 | 112 | 112 | | | 112 | | | |
| | 100 | 106 | 106 | 106 | 106 | 106 | 4.24 in. | | 106 | 106 | |
| 90 | 90 | 90 | 90 | 90 | 90 | 90 | 4 in. | | 100 | 100 | |
| | 80 | | 80 | 80 | 80 | | 3.1/2 in. | | 90 | 90 | |
| | 71 | 75 | 75 | 75 | 75 | 75 | 3 in. | | 80 | 75 | |
| 63 | 63 | 63 | 63 | 63 | 63 | 63 | 2.1/2 in. | | 71 | 75 | |
| | 56 | | 56 | 56 | 56 | | | 56 | | | |
| | | 53 | 53 | 53 | 53 | 53 | 2.12 in. | | 53 | 53 | |
| | 50 | | 50 | 50 | 50 | 50 | 2 in. | | 50 | 50 | |
| 45 | 45 | 45 | 45 | 45 | 45 | 45 | 1.3/4 in. | | 45 | 45 | |
| | 40 | | 40 | 40 | 40 | | | 40 | | | |
| | | 37,5 | 37,5 | 37,5 | 37,5 | 37,5 | 1.1/2 in. | | 37,5 | 37,5 | |
| | 35,5 | | 35,5 | 35,5 | 35,5 | | | 35,5 | | | |
| 31,5 | 31,5 | 31,5 | 31,5 | 31,5 | 31,5 | 31,5 | 1.1/4 in. | | 31,5 | 31,5 | |
| | 28 | | 28 | 28 | 28 | | | 28 | | | |
| | | 26,5 | 26,5 | 26,5 | 26,5 | 26,5 | 1.06 in. | | 26,5 | 26,5 | 1.05 in. |
| | 25 | | 25 | 25 | 25 | 25,0 | 1 in. | | 25,0 | 25,0 | |
| 22,4 | 22,4 | 22,4 | 22,4 | 22,4 | 22,4 | 22,4 | 7/8 in. | | 22,4 | 22,4 | .883 in. |
| | 20 | | 20 | 20 | 20 | | | 20 | | | |
| | | 19 | 19 | 19 | 19 | 19,0 | 3/4 in. | | 19,0 | 19,0 | .742 in. |
| | 18 | | 18 | 18 | 18 | | | 18 | | | |
| 16 | 16 | 16 | 16 | 16 | 16 | 16,0 | 5/8 in. | | 16,0 | 16,0 | .624 in. |
| | 14 | | 14 | 14 | 14 | | | 14 | | | |
| | | 13,2 | 13,2 | 13,2 | 13,2 | 13,2 | 0.530 in. | | 13,2 | 13,2 | .525 in. |
| | 12,5 | | 12,5 | 12,5 | 12,5 | 12,5 | 1/2 in. | | 12,5 | 12,5 | |
| 11,2 | 11,2 | 11,2 | 11,2 | 11,2 | 11,2 | 11,2 | 7/16 in. | | 11,2 | 11,2 | .441 in. |
| | 10 | | 10 | 10 | 10 | | | 10 | | | |
| | | 9,5 | 9,5 | 9,5 | 9,5 | 9,5 | 3/8 in. | | 9,5 | 9,5 | .371 in. |
| | 9 | | 9 | 9 | 9 | | | 9 | | | |
| 8 | 8 | 8 | 8 | 8 | 8 | 8,0 | 5/16 in. | | 8,0 | 8,0 | 2.1/2 |
| | 7,1 | | 7,1 | 7,1 | 7,1 | | | 7,1 | | | |
| | | 6,7 | 6,7 | 6,7 | 6,7 | 6,7 | 0.265 in. | | 6,7 | 6,7 | 3 |
| | 6,3 | | 6,3 | 6,3 | 6,3 | 6,3 | 1/4 in. | | 6,3 | 6,3 | |
| 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 3.1/2 | | 5,6 | 5,6 | 3.1/2 |
| | 5 | | 5 | 5 | 5 | | | 5 | | | |
| | | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 4 | | 4,75 | 4,75 | 4 |
| | 4,5 | | 4,5 | 4,5 | 4,5 | | | 4,5 | | | |
| 4 | 4 | 4 | 4 | 4 | 4 | 4,00 | 5 | | 4,00 | 4,00 | 5 |
| | 3,55 | | 3,55 | 3,55 | 3,55 | | | 3,55 | | | |
| | | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 | 6 | | 3,35 | 3,35 | 6 |
| | 3,15 | | 3,15 | 3,15 | 3,15 | | | 3,15 | | | |
| 2,8 | 2,8 | 2,8 | 2,8 | 2,8 | 2,8 | 2,80 | 7 | | 2,80 | 2,80 | 7 |
| | 2,5 | | 2,5 | 2,5 | 2,5 | | | 2,5 | | | |
| | | 2,36 | 2,36 | 2,36 | 2,36 | 2,36 | 8 | | 2,36 | 2,36 | 8 |
| | 2,24 | | 2,24 | 2,24 | 2,24 | | | 2,24 | | | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2,00 | 10 | | 2,00 | 2,00 | 9 |
| | 1,8 | | 1,8 | 1,8 | 1,8 | | | 1,8 | | | |
| | | 1,7 | 1,7 | 1,7 | 1,7 | 1,70 | 12 | | 1,70 | 1,70 | 10 |
| | 1,6 | | 1,6 | 1,6 | 1,6 | | | 1,6 | | | |
| 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,40 | 14 | | 1,40 | 1,40 | 12 |
| | 1,25 | | 1,25 | 1,25 | 1,25 | | | 1,25 | | | |
| | | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 16 | | 1,18 | 1,18 | 14 |
| | 1,12 | | 1,12 | 1,12 | 1,12 | | | 1,12 | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1,00 | 18 | | 1,00 | 1,00 | 16 |

Woven Wire Cloth # Drahtgewebe Round Holes ● Rundlochung Square Holes ■ Quadratlochung

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*National editions of ISO 3310. Nationale Ausgaben der ISO 3310.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---------------------------------------|--|---|---|---|---|---|---|---|-------------------------|
| ISO 3310 Table 2, Micrometre sizes | | | DEU | DEU | | USA | USA | USA | TYLER® | |
|  | N |  NF* |  |  | |  |  |  |  | |
| Principal sizes Hauptreihe | Supplementary sizes Nebenreihen | | | | | Standard | U.S. Alternative | Supplementary sizes Nebenreihen | | |
| R 20/3 | R 20 | R 40/3 | | | | | | | | |
| Nominal aperture sizes acc. to ISO 565 Nennmaschenweiten nach ISO 565 | | | DIN ISO 3310-1 # | DIN ISO 3310-3 ☒ | | ASTM E11 # | | ASTM E11 # | ASTM E161 ☒ | TYLER Screen Scale # |
| | | | 900–20 | 500–5 | | 850–20 | | 900–36 | 500–5 | 850–20 |
| w | w | w | w | w | | w | No. | w | w | Mesh |
| | 900 | | 900 | | | | | 900 | | |
| | | 850 | 850 | | | 850 | 20 | | | 20 |
| 710 | 800 | | 800 | | | | | 800 | | |
| | 710 | 710 | 710 | | | 710 | 25 | | | 24 |
| | 630 | | 630 | | | | | 630 | | |
| | | 600 | 600 | | | 600 | 30 | | | 28 |
| 500 | 560 | | 560 | | | | | 560 | | |
| | 500 | 500 | 500 | 500 | | 500 | 35 | | 500 | 32 |
| | 450 | | 450 | 450 | | | | 450 | | |
| | | 425 | 425 | 425 | | 425 | 40 | | 425 | 35 |
| 355 | 400 | | 400 | 400 | | | | 400 | | |
| | 355 | 355 | 355 | 355 | | 355 | 45 | | 355 | 42 |
| | 315 | | 315 | 315 | | | | 315 | | |
| | | 300 | 300 | 300 | | 300 | 50 | | 300 | 48 |
| 250 | 280 | | 280 | 280 | | | | 280 | | |
| | 250 | 250 | 250 | 250 | | 250 | 60 | | 250 | 60 |
| | 224 | | 224 | 224 | | | | 224 | | |
| | | 212 | 212 | 212 | | 212 | 70 | | 212 | 65 |
| 180 | 200 | | 200 | 200 | | | | 200 | | |
| | 180 | 180 | 180 | 180 | | 180 | 80 | | 180 | 80 |
| | 160 | | 160 | 160 | | | | 160 | | |
| | | 150 | 150 | 150 | | 150 | 100 | | 150 | 100 |
| 125 | 140 | | 140 | 140 | | | | 140 | | |
| | 125 | 125 | 125 | 125 | | 125 | 120 | | 125 | 115 |
| | 112 | | 112 | 112 | | | | 112 | | |
| | | 106 | 106 | 106 | | 106 | 140 | | 106 | 150 |
| 90 | 100 | | 100 | 100 | | | | 100 | | |
| | 90 | 90 | 90 | 90 | | 90 | 170 | | 90 | 170 |
| | 80 | | 80 | 80 | | | | 80 | | |
| | | 75 | 75 | 75 | | 75 | 200 | | 75 | 200 |
| 63 | 71 | | 71 | 71 | | | | 71 | | |
| | 63 | 63 | 63 | 63 | | 63 | 230 | | 63 | 250 |
| | 56 | | 56 | 56 | | | | 56 | | |
| | | 53 | 53 | 53 | | 53 | 270 | | 53 | 270 |
| 45 | 50 | | 50 | 50 | | | | 50 | | |
| | 45 | 45 | 45 | 45 | | 45 | 325 | | 45 | 325 |
| | 40 | | 40 | 40 | | | | 40 | | |
| R'10 | | 38 | 38 | 38 | | 38 | 400 | | 38 | 400 |
| 32 | 36 | | 36 | 36 | | | | 36 | | |
| 25 | | | 32 | 32 | | 32 | 450 | | 32 | 450 |
| | | | 25 | 25 | | 25 | 500 | | 25 | 500 |
| 20 | | | 20 | 20 | | 20 | 635 | | 20 | 635 |
| | | | | 16 | | | | | 15 | |
| | | | | 10 | | | | | 10 | |
| | | | | 5 | | | | | 5 | |

Woven Wire Cloth # Drahtgewebe

Electroformed sheet ☒ Elektroformte Siebfolie

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*National editions of ISO 3310. Nationale Ausgaben der ISO 3310.

Our wire cloth for test sieves complies with the standards acc. to the valid revision level.
Unsere Siebböden für Analysensiebe entsprechen den Normen nach gültigem Revisionsstand.

SIEVE SHAKERS. NEW DIMENSIONS IN PRECISION.

As well as high-quality test sieves, an efficient overall system also includes modern test sieve shakers. Haver & Boecker provides a multitude of devices for widely differing applications, which represent the state of the art in terms of functionality and features, and which can be precisely matched to suit your particular requirements. These provide integrated solutions for analysing materials of almost every shape, size and consistency.

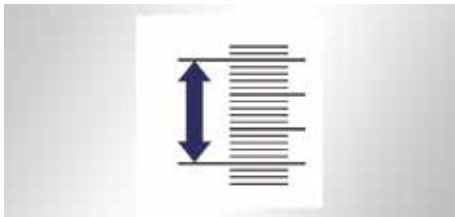




The 3D process saves time and eliminates the need for manual re-sieving frequently required in many cases.

Three-dimensional sieving motion.

Haver & Boecker test sieve shakers generate a three-dimensional sieving motion. The product is accelerated vertically out of the mesh and at the same time distributed over the surface of the sieve in a circular motion. The sieving results are thus rapidly available and are optimally reproducible.



A constant amplitude is therefore ensured at all times, irrespective of feed rate and installation site.

G-Control – automatic amplitude control.

Haver & Boecker also uses G-Control in all electromagnetically operated test sieve shakers – an automatic amplitude control system which continuously measures the acceleration of the whole sieve tower. This fully compensates for natural oscillations of the sieving machine and the subsurface.





HAVER EML 200. MAKING PROVEN TECHNOLOGY EVEN BETTER.

The HAVER EML 200 product family includes the Pure, Premium and Remote versions for analysis of up to 3 kg bulk material. All test sieve shakers are driven electromagnetically and generate a three-dimensional sieving motion with an automatic amplitude control.

HAVER EML 200 Pure

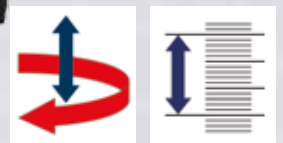
This easily and quickly operated basic model offers a choice of two fixed controlled amplitudes for coarse and fine materials. A defined interval occurs every 10 seconds.

HAVER EML 200 Premium

The HAVER EML 200 Premium offers a data interface and a free choice of amplitudes. It is ideal for users with special requirements for precise and reproducible sieve analysis.

HAVER EML 200 Premium Remote

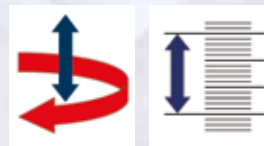
This test sieve shaker is particularly suitable for analyses requiring wet sieving. Fitted with a separate control unit, a cover with an inspection glass and an integrated full cone nozzle.



| | EML 200 Pure | EML 200 Premium | EML 200 Premium Remote |
|-----------------------------|---|---|---|
| Method of analysis | Sieving | Sieving | Sieving |
| Measurement range | 20 µm – 125 mm | 20 µm – 125 mm | 20 µm – 125 mm |
| max. sieving material batch | approx. 3 kg | approx. 3 kg | approx. 3 kg |
| Sieve tower weight | max. 8.7 kg | max. 8.7 kg | max. 8.7 kg |
| Sieve diameter | 50 mm – 203 mm | 50 mm – 203 mm | 50 mm – 203 mm |
| max. number of sieves | 9 (effective height 50 mm) 15 (effective height 32 mm) | 9 (effective height 50 mm) 15 (effective height 32 mm) | 9 (effective height 50 mm) 15 (effective height 32 mm) |
| Dry sieving | yes | yes | yes |
| Wet sieving | no | no | yes |
| Voltage | 110 – 230 V, 50 – 60 Hz | 110 – 230 V, 50 – 60 Hz | 110 – 230 V, 50 – 60 Hz |
| Amplitude | fine and coarse | freely selectable up to 3 mm | freely selectable up to 3 mm |
| Amplitude adjustment | controlled and self-adjusting amplitude | controlled and self-adjusting amplitude | controlled and self-adjusting amplitude |
| Timer | 0 – 99 minutes / constant operation | 0 – 99 minutes / constant operation | 0 – 99 minutes / constant operation |
| Operation type | interval | interval / constant | interval / constant |
| Interval | fixed, 10 sec. | adjustable | adjustable |
| Program memory locations | no | 01 – 49 | 01 – 49 |
| Evaluation software CSA | yes Basic license included | yes Basic license included | yes Basic license included |
| Calibratable test equipment | yes, acc. to ISO 9001 | yes, acc. to ISO 9001 | yes, acc. to ISO 9001 |
| Interface | no | yes | yes |

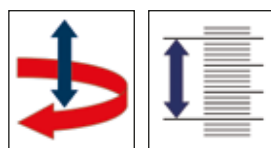


HAVER EML 315. SIEVE ANALYSIS OF UP TO 6 KG.



| Method of analysis | EML 315 digital plus T | EML 315 digital plus N |
|-----------------------------|--|--|
| | Sieving | Sieving |
| Measurement range | 20 µm – 125 mm | 20 µm – 125 mm |
| max. sieving material batch | approx. 6 kg | approx. 6 kg |
| Sieve tower weight | max. 21 kg | max. 21 kg |
| Sieve diameter | 200 mm – 315 mm | 200 mm – 315 mm |
| max. number of sieves | 7 (315 x 75 mm) 8 (300 x 60 mm) | 7 (315 x 75 mm) 8 (300 x 60 mm) |
| Dry sieving | yes | yes |
| Wet sieving | no | yes |
| Voltage | 110 V, 50 – 60 Hz 230 V, 50 – 60 Hz | 110 V, 50 – 60 Hz 230 V, 50 – 60 Hz |
| Amplitude | freely selectable up to 2 mm | freely selectable up to 2 mm |
| Amplitude adjustment | constant and self-adjusting amplitude | controlled and self-adjusting amplitude |
| Timer | 0 – 99 minutes / constant operation | 0 – 99 minutes / constant operation |
| Operation type | interval / constant | interval / constant |
| Interval | adjustable | adjustable |
| Program memory locations | 01 – 10 | 01 – 10 |
| Evaluation software CSA | yes | yes |
| Calibratable test equipment | yes, acc. to ISO 9001 | yes, acc. to ISO 9001 |
| Interface | yes | yes |

HAVER EML 450. SIEVE ANALYSIS OF UP TO 15 KG.



| | EML 450 digital plus T | EML 450 digital plus N |
|-----------------------------|--|--|
| Method of analysis | Sieving | Sieving |
| Measurement range | 20 µm – 125 mm | 20 µm – 125 mm |
| max. sieving material batch | approx. 15 kg | approx. 15 kg |
| Sieve tower weight | max. 42 kg | max. 42 kg |
| Sieve diameter | 200 mm – 450 mm | 200 mm – 450 mm |
| max. number of sieves | 13 (400 x 65 mm) | 13 (400 x 65 mm) |
| Dry sieving | yes | yes |
| Wet sieving | no | yes |
| Voltage | 110 V, 50 – 60 Hz 230 V, 50 – 60 Hz | 110 V, 50 – 60 Hz 230 V, 50 – 60 Hz |
| Amplitude | freely selectable up to 2 mm | freely selectable up to 2 mm |
| Amplitude adjustment | constant and self-adjusting amplitude | controlled and self-adjusting amplitude |
| Timer | 0 – 99 minutes / constant operation | 0 – 99 minutes / constant operation |
| Operation type | interval / constant | interval / constant |
| Interval | adjustable | adjustable |
| Program memory locations | 01 – 10 | 01 – 10 |
| Evaluation software CSA | yes | yes |
| Calibratable test equipment | yes, acc. to ISO 9001 | yes, acc. to ISO 9001 |
| Interface | yes | yes |

HAVER UWL 400. SIEVE ANALYSIS OF UP TO 20 KG.



Method of analysis

Measurement range
max. sieving material batch
Sieve tower weight
Sieve diameter

max. number of sieves
Dry sieving
Wet sieving

UWL 400 T und H

Sieving

20 µm – 125 mm
approx. 20 kg
max. 50 kg
200 mm – 450 mm
300 mm x 300 mm, 500 mm x 500 mm
12 (effective height 65 mm)
yes
no

230 V, 50 – 60 Hz
0 – 599 minutes
driven by two rotary current
unbalanced motors

UWL 400 N

Sieving

20 µm – 125 mm
approx. 20 kg
max. 50 kg
200 mm – 450 mm
12 (effective height 65 mm)
yes
yes

230 V, 50 – 60 Hz
0 – 599 minutes
driven by two rotary current
unbalanced motors

Evaluation software CSA
Calibratable test equipment
Interface

yes
yes, acc. to ISO 9001
no

yes
yes, acc. to ISO 9001
no

HAVER UFA.

ULTRASONIC FREQUENCY VARIATION FOR TEST SIEVES.

The ultrasonic frequency variation for test sieves is used to efficiently screen powders and critical sieve cuts ≤ 300 microns. The sieve mesh is excited by uniformly distributed ultrasonic waves at continuously varying frequencies. These high-frequency vibrations reduce the frictional resistance between particles and the sieve mesh and thereby reduce the blocking tendency, promote the destruction of agglomerates, increase the sieve performance and shorten the time required for sieving. This method of aiding the sieving process makes it possible to complete the sieving process much more quickly. This makes sieving with vibration machines possible for some bulk materials which otherwise would not be possible.



Ultrasonic frequency variation on a test sieve shaker.



Test sieve with clamping ring, converter and generator.



Clamping ring for the test sieve to be excited.



Digital generator for simultaneous excitation of up to three test sieves.



W.S.TYLER RO-TAP®.

MECHANICAL ROTATION AND TAPPING MOTION.

Together with our American subsidiary W. S. TYLER, HAVER & BOECKER offers integrated solutions for analysing sieving materials of virtually any shape, size and condition.

Method of analysis

Measurement range
max. sieving material batch

Sieve diameter
max. number of sieves

Dry sieving
Wet sieving

Voltage

Timer

Evaluation software CSA
Calibratable test equipment
Interface

Ro-Tap® RX-94

Sieving

20 µm – 125 mm
approx. 2 x 3 kg

200 mm, 203 mm (8")
2 x 6 (203 mm x 50 mm)

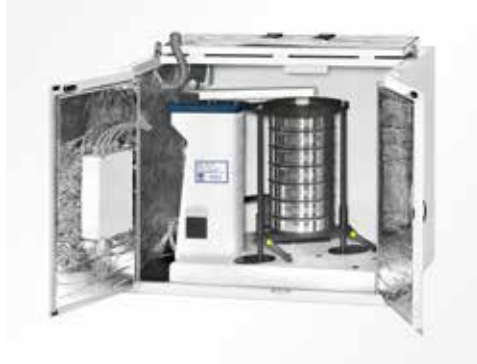
yes
no

110 V, 50 Hz or 110 V, 60 Hz
230 V, 50 Hz or 230 V, 60 Hz

0 – 99 minutes

yes
yes, acc. to ISO 9001
no





| | Ro-Tap® RX-29 | Ro-Tap® RX-30 |
|--|---|---|
| Method of analysis | Sieving | Sieving |
| Measurement range max. sieving material batch | 20 µm – 125 mm approx. 3 kg | 20 µm – 125 mm approx. 3 kg |
| Sieve diameter max. number of sieves | 200 mm, 203 mm (8") 6 (203 mm x 50 mm) | 300 mm, 305 mm (12") 5 (300 mm x 60 mm) |
| Dry sieving | yes | yes |
| Wet sieving | no | no |
| Voltage | 110 V, 50 Hz or 110 V, 60 Hz 230 V, 50 Hz or 230 V, 60 Hz | 110 V, 50 Hz or 110 V, 60 Hz 230 V, 50 Hz or 230 V, 60 Hz |
| Timer | 0 - 99 minutes | 0 - 99 minutes |
| Evaluation software CSA | yes | yes |
| Calibratable test equipment | yes, acc. to ISO 9001 | yes, acc. to ISO 9001 |
| Interface | no | no |
| CE compliant | Permanently installed in a soundproof cabinet fitted with external control (see small image) | Permanently installed in a soundproof cabinet fitted with external control (see small image) |



HAYER CSA. EVALUATION SOFTWARE FOR SIEVE ANALYSES.

The HAYER CSA (Computerized Sieve Analysis) software enables PC-aided evaluation of standard sieve analyses. Analyses can thus be evaluated easily and precisely within a short amount of time. The user interface is friendly and self-explanatory. The results, graphical representations and the comprehensive documentation materials can be incorporated in statistics and reports.

With help of the Data Matrix Code (DMC) on the test sieve frame and a scanner sieve details can automatically be imported into the sieve file of the CSA software.

Three versions of the HAYER CSA software are available, which vary in the scope of their functions:



| | BASIC | EXPERT | NETWORK |
|--|-------|--------|---------|
| Entry of sieve sets, materials and customers; evaluation of the analysis; protocol (DIN 2591 + DIN 66165) | X | X | X |
| Representation of particle size distributions (DIN 66141) | | | |
| Statistic functions, e.g. for materials and customers | | X | X |
| Extended calculations | | X | X |
| Calculations of the AFS grain fineness number according to the VDG bulletin | X | X | X |
| Definition of limit functions; load comparative data | | X | X |
| Graphics; RRSB grids, particle size distribution curves | X | X | X |
| Database functions, e.g. search and evaluation functions | | X | X |
| Data export to Excel | | X | X |
| Data import of previous CSA versions | | X | X |

HAVER USC. TEST SIEVE CLEANERS.

Clean test sieves are prerequisite for accurate sieving results. HAVER USC units guarantee that sieves are cleaned thoroughly and gently while at the same time saving energy. They have proved to work outstandingly well in practice, particularly in conjunction with the HAVER USC cleaner concentrate. USC cleaners are available in various sizes for cleaning individual sieves and for the simultaneous cleaning of up to five sieves.

USC 200 S

| | |
|---------------------------|----------------|
| Number of sieves | 1 |
| Sieve diameter | ≤ 203 mm |
| Oscillation tank (inside) | Ø 240 x 140 mm |
| Outside dimensions | Ø 304 x 335 mm |
| Charge | 6 l |
| CE Compliant | yes |
| Protection class | IP 20 |



USC 500 S

| | |
|---------------------------|----------------|
| Number of sieves | 1 |
| Sieve diameter | ≤ 500 mm |
| Oscillation tank (inside) | Ø 600 x 245 mm |
| Outside dimensions | Ø 650 x 455 mm |
| Charge | 70 l |
| CE Compliant | yes |
| Protection class | IP 20 |



USC 200 Multi

| | |
|---------------------------|----------------------|
| Number of sieves | 5 |
| Sieve diameter | ≤ 230 mm |
| Oscillation tank (inside) | Ø 500 x 300 x 300 mm |
| Outside dimensions | Ø 650 x 455 mm |
| Charge | 40 l |
| CE Compliant | yes |
| Protection class | IP 33 |



CERTIFIED SAFETY. SERVICE FOR SUSTAINABLE QUALITY.

COMPULSORY FEATURES.

Regular monitoring

Test sieves and test sieve shakers are test and measuring devices, which, according to DIN EN ISO 9000 ff, must be certified, and regularly monitored and checked in operation. For this reason, we provide comprehensive test certificates and service for all our products for sustainable and regulation-compliant quality assurance.

Reproducible results

At Haver & Boecker, test sieve cloth and test sieves are manufactured to all the applicable standards, and monitored by our Quality Management System, which is certified in accordance with ISO 9001:2015. Unless otherwise agreed, we supply all test sieves with a free certificate of conformity 2.1 in accordance with DIN EN 10204.

EXTRA FEATURES.

Additional tests

If required, we can issue test certificates 3.1 in accordance with DIN EN 10204 for test sieves. The necessary tests can be carried out at two confidence levels as a certifying or calibrating measurement.

Certification and recertification

We use a calibrated video analysis system for certifying new test sieves and recertifying used test sieves. This can be done using either a

stationary unit in our company laboratory or a mobile unit on the customer's premises.

The Haver BSA measuring system meets the current version of the ISO 3310-1 and ASTM E11 requirements for test sieves.

Machines in top form

We can also test the operation, safety and condition of test sieve shakers on your behalf, either at our factory or directly on site. Following successful testing, we will attach a test seal to the test sieve shaker and issue an test certificate 3.1 in accordance with DIN EN 10204.

Extended warranty for sieve shakers

The warranty period for test sieve shakers is 2 years – if an extension to 4 years is requested, the machine must be tested by us once a year. This can be done at our factory or on site.

Commissioning and training on site

Whether on the subject of 'correct sampling', 'reproducible sieve analyses' or 'sieve cleaning', we will be glad to provide on-site training to ensure optimal performance of sieve analyses.

IQ/OQ in accordance with GMP

Installation Qualification (IQ) is the documented proof that the equipment meets the requirements you are required to fulfil in terms of identity, installation, compliance with directives and documentation. Operational Quality (OQ) ensures that the machines operate as designed and that they operate properly over the entire scope of the process-critical parameters.



HAYER CALIBRATION LABORATORY. IN ACCORDANCE WITH DIN EN ISO / IEC 17025.

The calibration of test sieves with wire mesh sieve sections enhances the previous verification of test sieves with a test certificate 3.1 in accordance with DIN EN 10204.

The calibration certificates issued by Haver & Boecker for test sieves with metal wire cloth serve as proof of the relationship to national and international standards and are recognized internationally by the corresponding signatory countries within the scope of respective agreements (EA, ILAC, etc.).

Set up and operation of the Haver calibration laboratory is based on the DIN EN ISO / IEC 17025 standard, which governs the 'General requirements for the competence of testing and calibration laboratories'. The accreditation was carried out by 'Deutsche Akkreditierungsstelle GmbH' the German accreditation body (DakKS).

Requirements for the competence of testing and calibration laboratories

- Assurance of professional competence
- Quality management in accordance at least with DIN EN ISO 9001:2000
- Transparency of the obtained measurement results
- Measurements under clean room conditions
- Professionally substantiated measurement results
- Indication of measurement uncertainties
- Tracing of the measuring equipment used back to national & international standards



Ac/cred/i/ta/tion <lat. accredere>
(Business: officially accepted)



COMPLEMENT WITH ACCESSORIES. FOR PRECISE, CONVENIENT WORK IN LABORATORIES.

Sound absorbing cabinets for test sieve shakers

Test sieve shakers can be used in sound absorbing cabinets in order to reduce the noise level in the laboratory environment. Depending on the machine type used, the cabinets can reduce the noise level by up to 28 dB(A).



HAYER Drip-off Weight Test Set

This device is used for in-house and official calibration tests by the board of weights and measures on products in the fish and meat processing industry and for tinned fruits and vegetables. The tilting device is initially horizontal and after introducing the product can be fixed at an angle of inclination of approx. 17° to 20°.

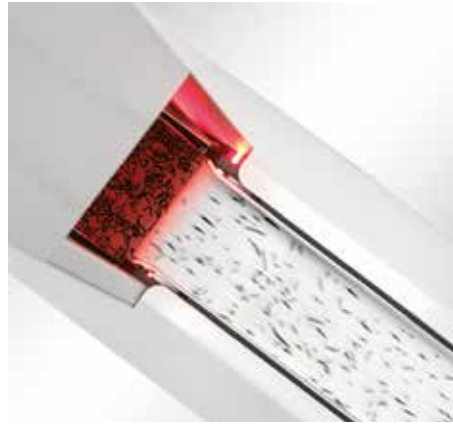
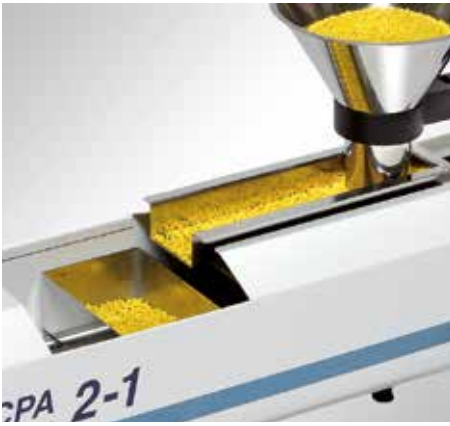
A complete set consists of a tilting device, test sieve 2.80 mm aperture in accordance with DIN ISO 3310-1, intermediate pan and sieve pan with discharge nozzle.



HAYER-Cones made from Metal Wire Cloth

HAYER-Cones are used for determining the absorption capability of granular products utilising the Westinghouse method. They comply with the European prEN 15366:2005 standard for winter and road service area maintenance equipment/solid absorbents intended for road usage, and the French NF V 19-002 standard for pet litter/determination of absorption capability and water retention capacity.





HAYER CPA. PHOTO-OPTICAL PARTICLE ANALYSIS.

The principle of CPA measurement: State-of-the-art innovation.

HAYER CPA measuring instruments are based on digital image processing. A high-resolution digital line scan camera scans the particles in free-falling bulk materials against the background of an LED lighting array with a recording frequency of up to 28,000 line scans per second.

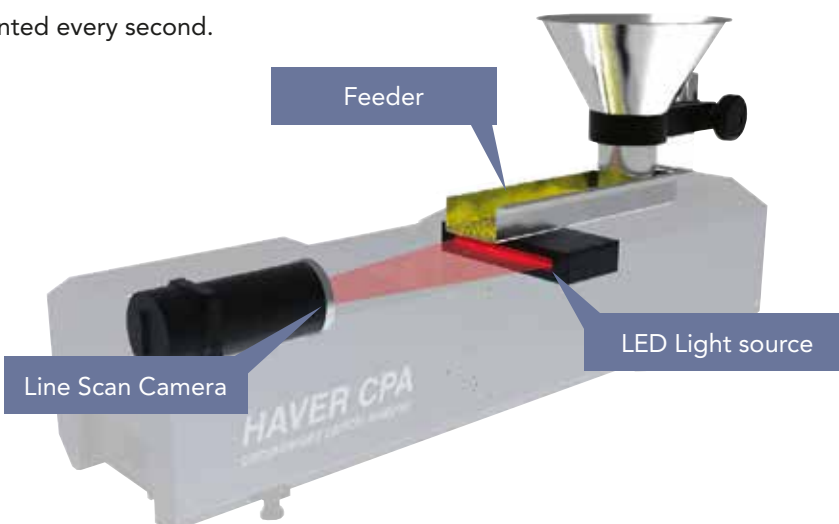
The scanned lines are combined by the CPA to form an endless data record and the shadow projections of the particles are evaluated in real time (HAYER REAL TIME) in parallel with the measuring process. Up to 10,000 particles can be detected, analysed and counted every second.

Tailor-made solution off the peg: CPA CONVEYOR.

The CPA CONVEYOR measuring process has been especially developed for analysing elongated materials where measuring results can be falsified due to overlaying and rotation of particles while the image is being analysed. Particles are separated and brought into a stable orientation before the dynamic image analysis takes place. The HAYER CONVEYOR measuring principle virtually rules out random rotation of the particles at the instant they are measured.

A one-stop shop: from laboratory and industrial units to customised special solutions.

All HAYER CPA units are equipped with HAYER CPA software which runs under major Windows operating systems. Its convenient installation, user-friendly, menu-prompted operation and clear presentation of results are impressive. The HAYER CPA portfolio covers a measuring range of 10 µm – 400 mm. All units are provided with the hardware and software for online operation. Modular HAYER peripherals enhance the capabilities of the CPA units.





INDUSTRIAL SIEVES. ALL REQUIREMENTS UNDER FULL CONTROL.

From quarries, sand and gravel works to the production of crude oil; from paint and powder coating manufacturers; from chemical and pharmaceutical companies to the food industry – industrial sieves from Haver & Boecker are used in virtually all areas of application. Through the continuous exchange of information with engineers, manufacturers and users of sieve shakers, we ensure that you always use the appropriate screen section.

A partner for all sieving processes

In order to ensure reliable and efficient sieving processes, the materials, the mesh shape, weave type and sieve shaker must be optimally matched to the material being sieved.

The scope of Haver & Boecker's offer includes solutions for all sieve shaker types and applications: classic screen sections made of high-strength and stainless steel as well as special self-cleaning sieve cloths and pretensioned screen sections with and without ultrasonic support. Irrespective of the type of sieve you choose – high-quality materials and careful workmanship guarantee optimal functionality, maximum stability and durability.

Individual process optimisation

Choosing the right wire mesh specification depends on many factors that need to be evaluated differently for each sieving process.

Our expertise includes advice on the selection of the optimum sieving medium for individual screening processes, tailored to the conditions of production, the quality requirements of the products to be sieved and the available machines. We are glad to help you to find the ideal sieving medium for your sieving process.

A STRONG PROCESS CHAIN. FIRST CLASS QUALITY FROM ONE SOURCE.

Particle analysis with Haver & Boecker means: first-class quality from one source. With the combined expertise of wire weaving and mechanical engineering, we develop and manufacture test sieves and complete test sieve shakers in our own factories.

The control of the whole process chain, both in the manufacture of sieves and machines, enables us to guarantee quality, which exceeds the current standards during every phase: from wire cloth manufacture, processing and assembly – to final inspection and certification.

The efficiency of our customer service matches the quality expected of our products. We support users in all aspects of particle analysis as well as in the conscientious and standards-compliant maintenance and repair of their test systems. For the specialised trade, we offer a comprehensive and advanced range of products and systems as well as prompt and reliable order handling through our own worldwide distribution network.



COMPREHENSIVE AND INDIVIDUAL SERVICE.

Haver & Boecker has actively influenced the technology of wire weaving since its beginning. As a result of our successful company history, today we are able to offer our customers the benefit of our unrivalled experience, technology and know-how about wire cloth.

Whether science or research, industry or architecture – wherever Haver & Boecker wire cloth is used, our customers benefit from a broad but still unique individual service.

With our worldwide weaving network we offer the comforting certainty to be your competent and reliable partner at any time and any place. So as to continue WEAVING IDEAS in time to come.

Haver & Boecker operates production sites in Germany, Great Britain, Belgium, the USA, Canada, Brazil, India and Belarus. More than 3,000 people work for the Group worldwide.

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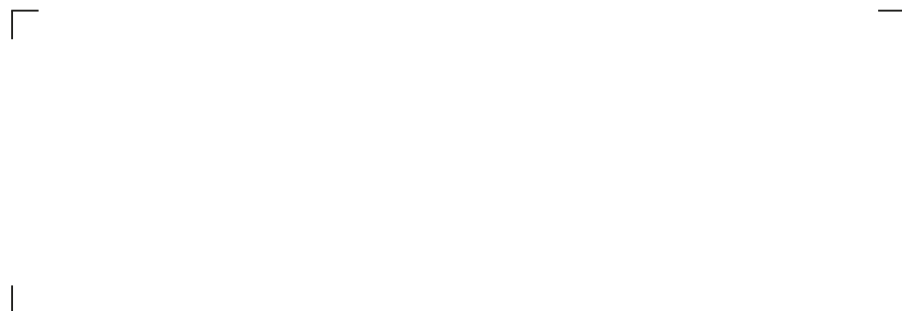
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