

HAYER & BOECKER



Information



**Photo-Optical
Particle Size Analysis**

HAVER-CPA

Photo-Optical Particle Size Analysis

The HAVER-CPA measuring system is protected by national and international patents: DBP-No. DE 41 19 240 C2, EP-No. 0 518 188 B1, US Patent 5,309,215 and other foreign patents. Using fibre optic technology, this high-resolution measuring unit has been developed for particle size and shape analysis of dry and individual, non agglomerating particles in bulk materials.

Thanks to the HAVER & BOECKER REAL TIME function, it can also be used as particle counting device. This new technology guaranties that all particles are detected and analyzed. The common 'double-count' caused by overlapping matrix-pictures in other systems are eliminated using this new technology. Faulty analysis due to undersize particles is also excluded. The digital CCD Line Camera calculates the equivalent of more than 24 Mega pixels of a Matrix camera. It can generate very large pictures of 128 Mega pixels and more.

The HAVER CPA analyzes and calculates up to 10,000 particles per second. The particle size and shape calculations are performed pixel by pixel, independent of the angle of the particle.

The unit can store each single particle, with all particle shape values. This single particle storage enables an almost infinite grading of the size classes. All particles can be stored as TIF image files for further analysis.

The hardware offers a pixel size of 10 µm and guarantees an extremely high resolution even with ultra-fine particle mixtures.

HAVER CPA uses an internal bus control that allows connection to any professional bus network. All CPA units can be integrated into an online process without any additional alteration.

The technology is nearly maintenance free, durable and developed for online use. It has been successfully used with many different materials and is established for use as a laboratory or online unit in industrial areas such as pharmaceutical, food, coal, quarries, plastic, abrasives, dust particle analysis and many others.

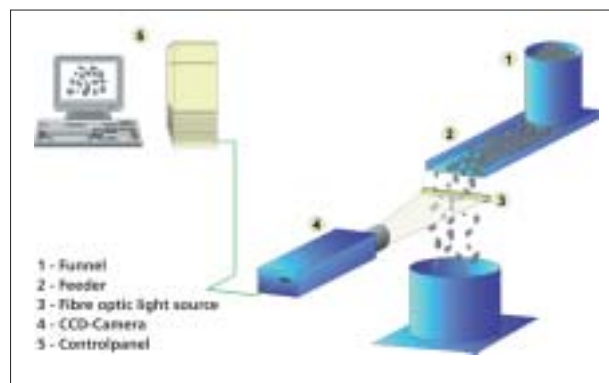
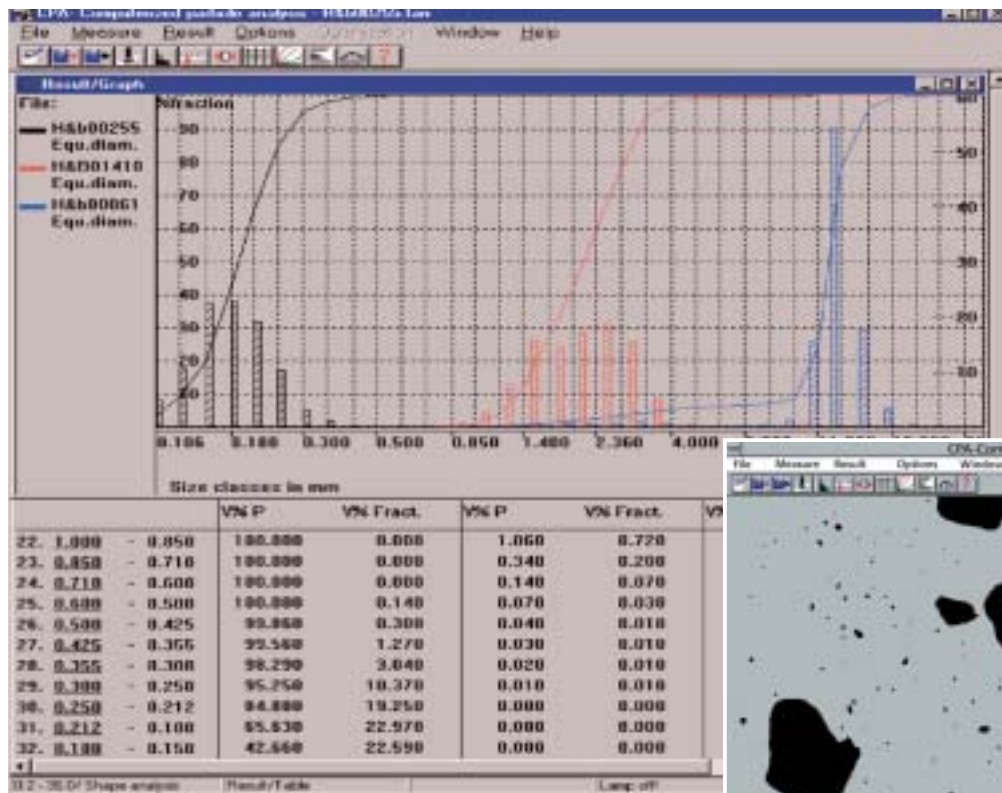
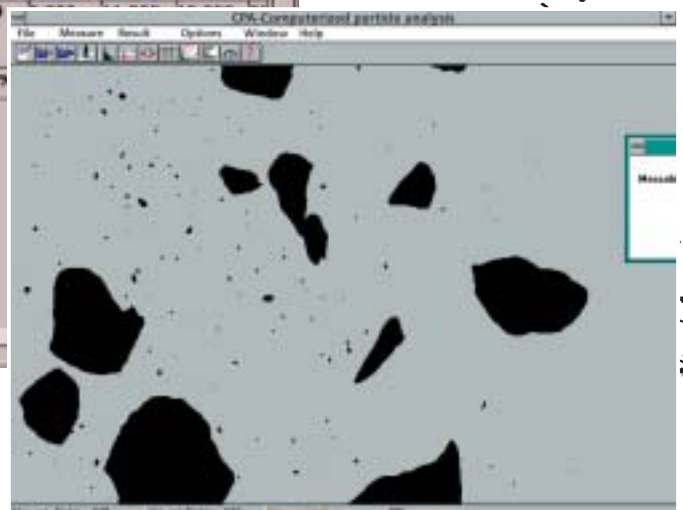


Diagram showing the layout of the CPA



Detailed representation during the measuring process



HAVER-CPA 3-2

Due to its stable, compact and modular construction, HAVER-CPA 3-2 is the ideal solution for most applications. The great variety of additional equipment, such as dryers, samplers, dispersing units etc., makes it suitable for a large range of different materials.



HAVER Scan file, length individually adjustable

HAVER-CPA 4

HAVER-CPA 4 units are available in different size ranges.



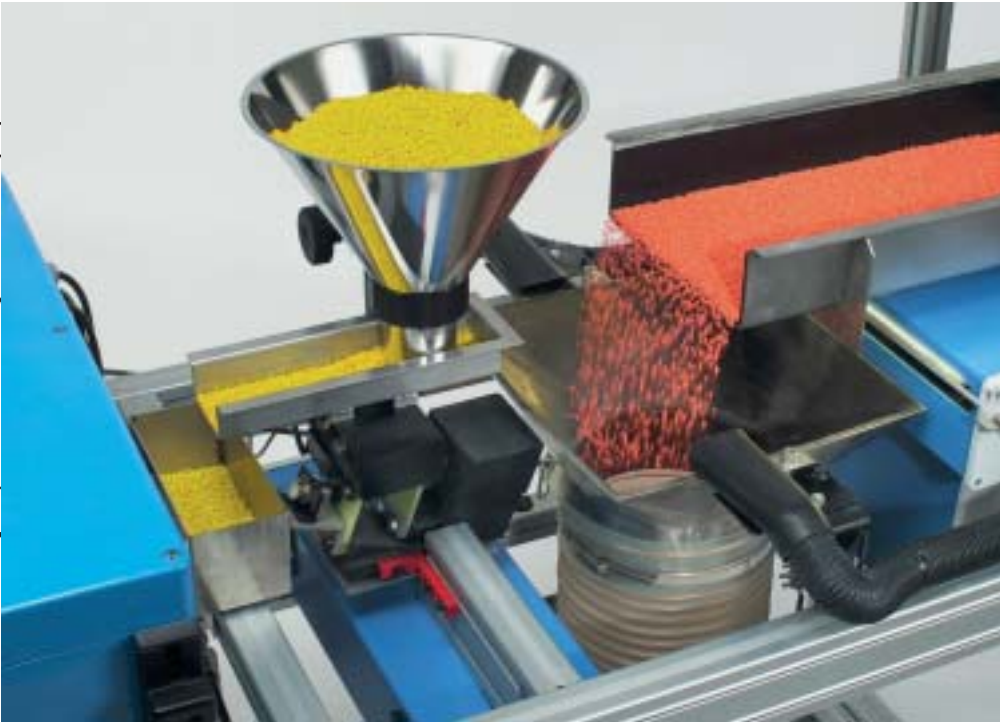
HAVER-CPA 4 Dual Range Portable

Measuring range: 0.063 to 100 mm
(230 Mesh up to 4 inch)

HAVER-CPA GRAVI OPT

Measuring range: 0 to 200 mm
GRAVI OPT combines gravimetric and optical particle analysis. At a selected size class the sieving unit separates the material and measures the fraction by scale. The CPA Software interfaces with the scale to obtain the weight and calculates the total distribution curve. An optional second measuring range offers an optical analysis of the stored fraction. Both results can be combined into one total result.





HAYER-CPA 4 Dual Range

Dual Range units are equipped with an autofocus system



HAVER-CPA-Online Applications



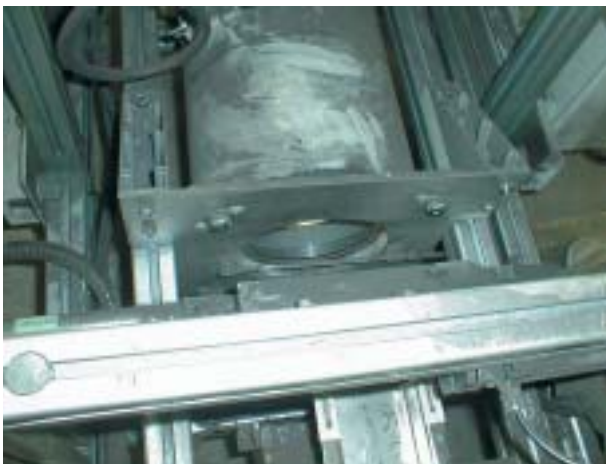
HAVER-CPA Online Unit equipped with roto sample divider and sample collector as used in the chemical industry.



HAVER-CPA control unit used for the catlitter industry



Online application for crusher control in the mineral processing technology



HAVER-CPA 4, measuring range 2, Online-Version, explosion-proof: EEx dII BT4



HAVER-CPA 3-2 for cold storage chamber in the food industry (-40°C/ -40° F)



HAVER-CPA Online application on a dredge



HAVER-CPA Online unit used for the production of activated carbon



HAVER-Autosampler



HAVER CPA Scan Weighing-System



HAVER-CPA measuring of coking coal



HAVER-CPA GRAVI OPT with dust freeing device

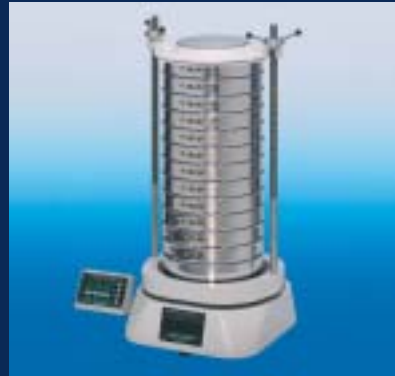
**Measuring, Analysing and Automation;
Filling and Material Handling Systems;
Mineral Processing Technology;
Switch and Control Systems; Turnkey Plants**



HAVER EML 200 digital plus



HAVER EML 300 digital plus



HAVER EML 450 digital plus



HAVER Test Sieves



Tyler RO-TAP 8", RX 29-10



HAVER ROTOSEAL® Packer



HAVER NIAGARA eccentric drive screening machine



HAVER logistics center for plastic granulates



HAVER Big Bag filling unit

Quality Management System



certified by DQS against
DIN EN ISO 9001

HAVER & BOECKER

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