A-28

PARTICLE ANALYSER

FRITSCH

TECHNICAL SPECIFICATIONS



EASY WORKING. GREAT RESULTS.

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TECHNICAL DATA

A-28 – Particle Analyser

Measuring Unit

Module	Measuring Unit
Working principle	Dynamic Image Analysis
Field of application	Analysis of particle size, analysis of particle shape, powders and bulk solids, emulsions and suspensions, quality control, research and development, laboratory, fast alternative to sieve analysis
Measuring range	Dry measurement: 20 µm - 20 mm
	Wet measurement: 5 µm - 3 mm
Type of analysis	Dry measurement of free-flowing powders and bulk solids
	Wet measurement of suspensions and emulsions
Measurement value	Particle size, particle shape
Standard	ISO 13322-2
Lenses (different, easy to change telecentric lenses)	
Dry measurement *(Enlargement / measuring range)*	0.157x / ~ 90 µm - 20 mm
	0.243x /~ 60 µm - 14.5 mm
	0.35x / ~ 40 µm - 9 mm
	0.735x / ~ 20 µm - 4.5 mm
Wet measurement *(Enlargement / measuring range)*	0.35x / ~ 20 µm - 3 mm
	0.735x / ~ 10 µm - 2 mm
	1.333x / ~ 5 µm - 1 mm
Camera	5 mega pixel CMOS camera 2,448 x 2,050 pixel resolution USB 3.0

Typical measuring time	< 5 min (depending on the desired measuring statistics)
Typical sample quantity	Dry measurement: 10 - 100 g Wet measurement: 0.1 - 1 g
Measuring speed	max. 75 images/s
Evaluation	Fast image analysis for morphology description and particle size determination (23 parameters), Sieve correlation, Data filter, Particle and image gallery, Fritsch cloud (correlation of up to 3 parameters)
Software	Image Sizing-Software ISS for controlling, recording and evaluating the measuring results pre-installed on supplied computer, incl. monitor, keyboard and mouse (without computer hardware for deliveries to CIS countries)
System requirements (for computers supplied by customer)	Standard Windows PC with Intel Core i7 Quad Core processor or better, at least 16 GB main memory, drives: 1 TB SSD, 1 TB HDD, USB 3.0 port, Windows 10 (64 bit), monitor with 1,920 x 1,080 pixel or better, keyboard, mouse
Electrical details	100 - 240 V/1~, 50 - 60 Hz, 60 Watt
Weight	Dry measurement: 38.6 kg Wet measurement: 52 kg
Dimensions (WxDxH)	Main unit (incl. dry measurement): 862 x 306 x 547 mm Wet dispersion unit 246 x 246 x 300 mm



Wet Dispersion Unit

Module	Wet Dispersion Unit
Type of wet dispersion	Closed liquid circulation system
Suspension volume	150 - 500 ml,with three predefined filling levels
Radial pump	Up to 3.5l/min, adjustable in steps between 1 and 10
Materials in contact with sample	High-quality stainless steel 316L, PTFE, FFKM, FEP, BK7 glass, FKM, hoses made of silicone
Conversion kit Extended for extreme chemical resistance (optional)	Seals made of FFKM, flow plate made of FFKM, hoses with inner liner made of FEP
Sample material characteristics	Suspensions, emulsions and solids that do not agglomerate, are not soluble in the dispersion liquids, are poorly free-flowing or are sticky
Sample quantity	Some 10 mg (nm range) to a few grams (mm range) depending on the sample material and particle size
Weight	16 kg
Dimensions (W x D x H)	246 x 246 x 300 mm



Ultrasonic Box

Module	Ultrasonic Box
Output	Up to 50 W, adjustable in steps between 1 and 10
Materials in contact with sample	High-quality stainless steel 316L, FFKM, hoses made of silicone
Sample material characteristics	Suspensions, emulsions and solids that agglomerate
Dimensions (WxDxH)	287 x 90 x 279 mm
Weight	6.2 kg
Safety class	IP 22



ACCESSORIES

A-28 – Particle Analyser

Order no.	Article
	**Particle Analyser A-28**
28.2000.00	for 100 - 240 V/1~, 50 - 60 Hz, 60 watts with USB-interface and software already pre-installed on supplied computer, incl. monitor, keyboard, mouse **For dry measurement please order lenses according to the desired measuring range. For wet measurement please order wet dispersion unit, lenses according to the desired measuring range and if required ultrasonic box separately.**

Accessories for Particle Sizer A-28

	**Accessories for dry measurement of powders and bulk solids**
	Lenses with holder, feeder, funnel and incl. accessory case with FRITSCH test powder, cleaning brush, dust blower and much more
28.2060.00	Telecentric lens enlargement 0.157x with feeder 50 mm and sample funnel 2000 ml (measuring range ~ 90 µm - 20 mm, depth of field ~ 27 mm)
28.2070.00	Telecentric lens enlargement 0.243x with feeder 50 mm and sample funnel 2000 ml (measuring range ~ 60 µm - 14.5 mm, depth of field ~ 11 mm)
28.2061.00	Telecentric lens enlargement 0.35x with feeder 20 mm and sample funnel 250 ml (measuring range ~ 40 µm - 9 mm, depth of field ~ 5 mm)
28.2062.00	Telecentric lens enlargement 0.735x with feeder 20 mm and sample funnel 250 ml (measuring range ~ 20 µm - 4.5 mm, depth of field ~ 1.2 mm)

Order no.	Article
	**Modules for wet measurement of suspensions and emulsions**
	Wet dispersion unit suitable for many liquids
28.2600.00	Automatic dispersion, volume 150 - 500 ml suitable for extremely aggressive chemical dispersion liquids incl. accessory case with FRITSCH test powder, cleaning sand, tenside and much more
	Wet dispersion unit extended for extreme chemical resistance
28.2700.00	Automatic dispersion, volume 150 - 500 ml suitable for extremely aggressive chemical dispersion liquids incl. accessory case with FRITSCH test powder, cleaning sand, tenside and much more
	Ultrasonic box
22.9270.00	For dispersion with ultrasonic with max. 50 Watt ultrasonic output, variably adjustable for 200 - 240 V/1~, 50 - 60 Hz, 60 watts
22.9280.00	For dispersion with ultrasonic with max. 50 Watt ultrasonic output, variably adjustable for 100 - 120 V/1~, 50 - 60 Hz, 60 watts
	Lenses with holder
28.2017.00	Telecentric lens enlargement 0.35x (measuring range ~ 20 µm - 3000 µm, depth of field ~ 5 mm)
28.2018.00	Telecentric lens enlargement 0.735x (measuring range ~ 10 µm - 2000 µm, depth of field ~ 1.2 mm)
28.2501.00	Telecentric lens enlargement 1.333x (measuring range ~ 5 µm - 1000 µm, depth of field ~ 0.5 mm)

Order no.	Article
	Accessories for wet dispersion units
22.9515.00	Cover sample bath for wet dispersion units
22.9290.00	Pump (external) for filling the wet dispersion units with water if no suitable media connection is available
22.9170.00	Membrane laboratory pump (external) for filling the wet dispersion units with isopropanol if no media connection is available **(Please enquire about resistance to other aggressive liquids)**
	Spare parts for wet dispersion units
22.8566.26	Measuring cell glass 4 mm incl. seal for wet measuring cell
28.2615.84	Hose set standard for wet dispersion unit 28.2600.00
28.2616.84	Hose set standard for wet dispersion unit 28.2600.00 in combination with ultrasonic box
	Hoses and seals on request.
	Accessories for certified calibration
28.2224.00	Calibration plate with 0.5 mm dots with certificate for telecentric lenses enlargement 0.157x, 0.243x and 0.35x
28.2225.00	Calibration plate with 0.125 mm dots with certificate for telecentric lenses enlargement 0.735x and 1.333x
	Certification
96.0090.00	Set of IQ/OQ blank forms *(questionnaire format - implementation by customer - standards and implementation not included)*
	Maintenance packages for Particle Analyser A-28 on request!

Choose according to your measuring task dry or wet measurement



Lenses for dry measurement of powders and bulk solids (page 7)

In order to use the A-28 you will need at least one telecentric lens. Four telecentric lenses with different measuring ranges are available. Order the desired lenses separately according to the measuring task. They can all be retrofitted at any time, and are easy to replace.



Modules for wet measurement of suspensions and emulsions (page 8)

Wet dispersion is particularly suitable for fine particles, poorly flowing, fine-agglomerating or sticky materials, which do not react in water or other liquids. Select an ultrasonic box if you frequently measure sample material that tends to agglomerate.



Accessories for certified calibration (page 9)

For certified calibration of the A-28, two different calibration plates are offered. Please choose the appropriate calibration plate according to the lens used.

APPLICATION EXAMPLES

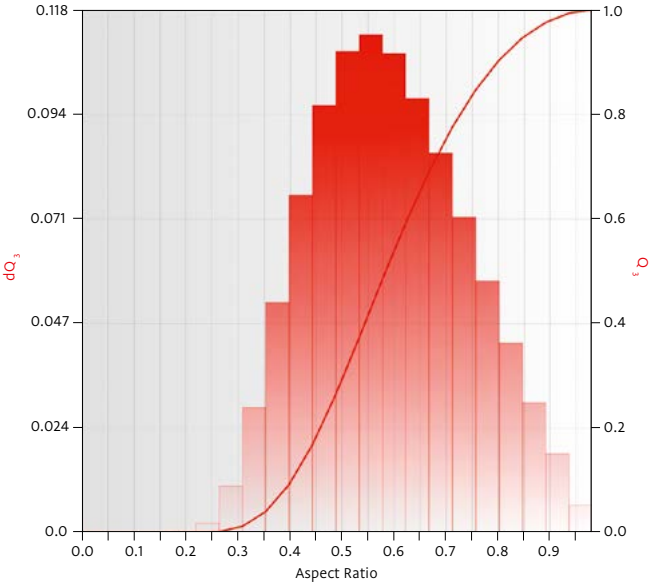
Dry or wet measurement

Sample 1: Feed pellets

Measurement

- Dry measurement (free fall)
- 0,243x lens
- Big feeder & funnel
- Analysis of aspect ratio





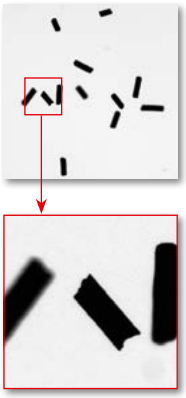


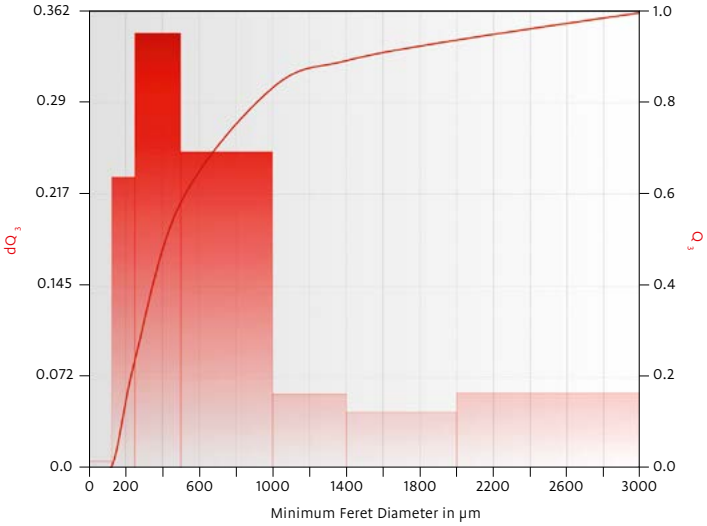
Image analysis

Sample 2: Sand

Measurement

- Dry measurement (free fall)
- 0,35x lens
- Small feeder & funnel
- Analysis of particle size distribution with minimum feret diameter





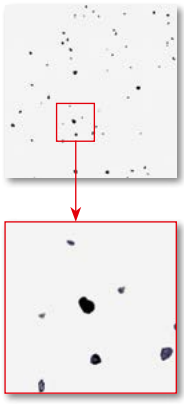


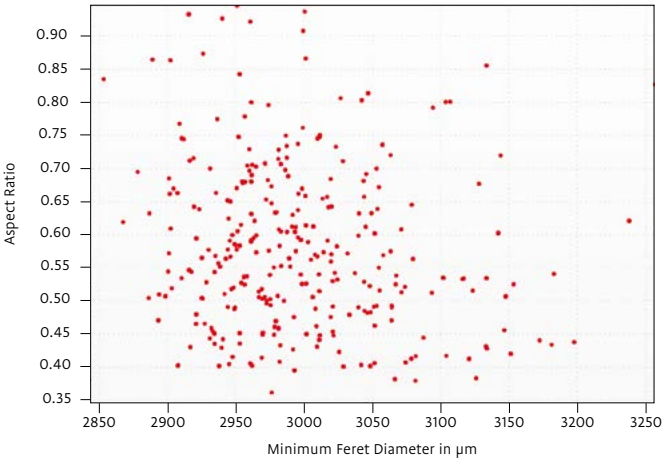
Image analysis

Sample 3: Rice

Measurement

- Dry measurement (free fall)
- 0,157x lens
- Big feeder & funnel
- Correlation of Minimum Feret Diameter and aspect ratio with Fritsch Cloud





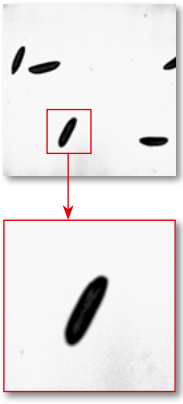


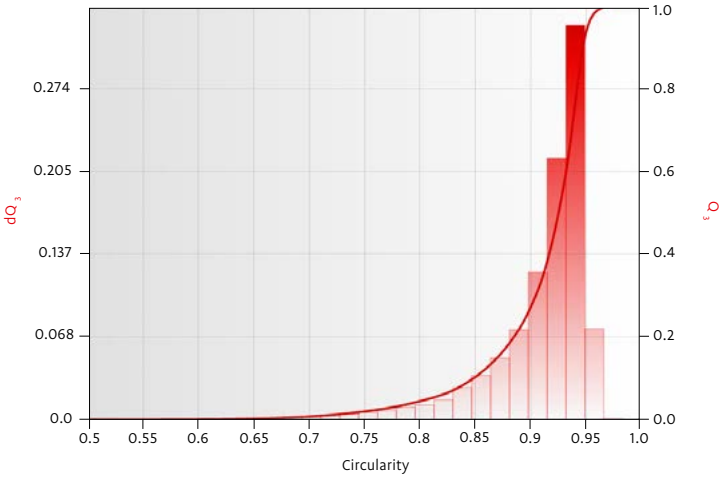
Image analysis

Sample 4: glass beads

Measurement

- Wet measurement
- 0,735x lens
- Pump speed 50 %
- Analysis of particle shape based on circularity
- Measurement goal: detection of good vs. defective particles





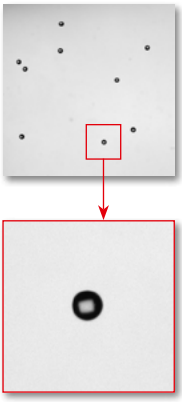


Image analysis

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Contact person:

Contact us now

for a non-binding consultation or individual test analysis to identify your ideal device configuration and parameters.

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