SYRINGE®

Particle Measuring System

KLOTZ®

Particle measuring systems for liquids, air, gases, oils and particle sizes.

SYRINGE®

Particle measuring system

The particle measuring system Syringe® was specifically designed for lab operation. The system includes the sample feeder Syringe®, the PC insert card PCI 1.0, the evaluation software and the PC. For the pharmaceutical sector the evaluation software SW-CA is available; the system is equipped with the laser sensor LDS 23/25 usp. It works in the range of 1-50 µm linear and is specifically made to meet the requirements in the pharmaceutical sector. For contamination control of water, beverages and other process liquids the laser diode sensor LDS 30/30 and the evaluation software SW-PE is normally used. The system can measure a particle size of 0.9-139 µm. As option the unit is also available with magnetic stirrer.

The system is optionally also suitable for particle size analysis. The particle is dispersed in the liquid; the greatest possible concentration of 120,000 particles/ml must not be exceeded.

Software:

With the software program SW-PE for normal liquids up to 256 freely selectable particle sizes can be measured. The evaluation can be executed as cumulative or distributive according to particle numbers or volume and/or dimensions. A flexible export to MS Excel for further evaluation and processing is possible.

The program SW-CA was specifically designed for the pharmaceutical industry. It allows the execution and evaluation of measurements according to the USP standard / Pharm EUR. Measurements or measuring sequences according to company specifications are possible. Likewise measurements that have been executed with diluted solutions can be evaluated. Log printouts as well as tabular representation are possible.

Areas of application:

Particle counting in the lab area, contamination control of liquids, quality control of pharmaceutical products, residual dirt analysis, particle size analysis.

Accessories

Evaluation software for Syringe®

Sampling from bag

Particle size analysis in the range of 1-200 µm

Calibration set

Technical Specifications

- **Sensor / Range / Concentration:**
  LDS 23/25 usp / 1-50µm

  LDS 30/30 / 0.9-139µm

- **Measuring Value Readout/Software:**
  LDS 23/25 usp: SW-CA (pharma)

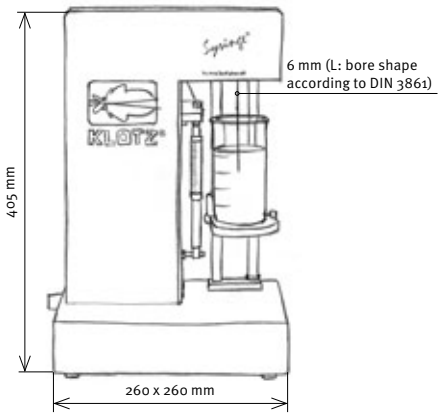
  LDS 30/30:SW-PE (research and development, general quality contol)

- **Channels:**
  SW-CA: max. 8 permanently set channels

  SW-PE: max 256 freely selectable channels

- **Power Supply:**
  230/115 VAC, 50/60 Hz

- **Dimensions (h x w x d):**
  405 x 260 x 260 mm



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Particle Measuring System Syringe®

The particle measuring system Syringe® is applied for the measurement of particle number and particle size in liquid media. It has been specifically developed for lab operation in the medical and pharmaceutical sector. The measuring system may be equipped with various sensors. The system is used, for example, for cleanliness control of water, pharmaceutical solutions, chemicals and beverages. Optionally it is possible to carry out particle size analyses with the equipment. The liquid to be tested for contamination is sucked from the sample glass through the laser sensor with the electronically controlled syringe system. The different syringes, 1 ml, 10 ml und 25 ml, are easily exchangeable. The particle measuring system Syringe allows you to measure even lowest volumes of 10 µl. The measuring tip, upon request made of polished stainless steel, may be quickly cleaned with very low flushing volume. Thus, you may measure samples in very rapid sequences. Due to the slanted cut of the measuring tip you can penetrate closed sample vessels without any problems. This enables you to avoid carrying in particles contained in the air. The particle measuring system Syringe works according to the optical particle counting method. With this method, you use the light absorbance – the extinction – when the particle passes the lighted cell as size determination. The advantage of this measuring method is that even in case of low particle occurrence single particles may be precisely detected and their size and number displayed. The electronic measuring component of the system is located on a circuit board that can be inserted into any common PC. Up to 256 size classes may be programmed as precision classification for the measurement. The measuring results are stored on the hard disk of the PC and may be exported into MS Excel for further statistical processing. Syringe® has an automatic calibration function with which you may check and recalibrate the system at any time.

Technical Specifications

Sample feeding device Syringe®

Syringe sizes	:	1 ml, 10 ml, 25 ml
Lowest meas. volume	:	10 µl
Magnetic stirrer (option)	:	adjustable; 0 – 200 U/min
Computer interface	:	RS 232 C (V. 24)
Power supply	:	230 V/AC ; 115 V/AC
Dimensions in mm	:	260 x 260 x 400 (L x W x H)
Weight	:	8 kg
Option	:	Magnetic stirrer → adjustable: 0-200 U/min stainless steel probe

PC measuring card SLC 1.0

Slots	:	16 Bit ISA-Slot (long)
Resolution	:	12 Bit A/D converter equals 4096 channels
Encoding	:	Address of insert card in I/O area adjustable via DIP switch
Power consumption	:	+5 V / 350 mA, +/- 12 V / 20 mA
Dimensions	:	276 x 99 mm
Option	:	with hopper in connectionw tih LDS 1/1 for residual dust contamination

Particle sensors

Model	Max. flow rate in ml/min	Measuring range in µm with Latex calibration	Cell dimensions in µm	Max. concentration particle/ml
LDS 23/25 bs	20	0.8 – 120	230 x 250	150 000
LDS 23/25 usp	20	1 – 50	230 x 250	100 000
LDS 30/30	30	0.9 – 139	300 x 300	120 000
LDS 45/50	50	Water: 1 – 160 (400) Oil: 1.5 – 100	450 x 500	22 000
LDS 1/1 (residual dust)	200	5 – 500	1000 x 1000	4 000

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