

## SERIES KS-701+KS-306.50-WI

**EIGHT-STAGE CASCAD IMPACTOR WITH BACKUP FILTER FOR THE FRACTIONATED SAMPLING OF SOLID PARTICLES AND AEROSOLS**



### SPECIAL FEATURES

- Eight impactor stages.
- Rapidly changeable impactor stages suitable for performing sequential, continuously periodical measurements.
- 30% smaller external dimensions, 40% less mass performing the same fl. rate.  $q=1,8$  [m<sup>3</sup>/h]
- The chambers of the impactor stages can be well separated for scaling.
- Cleaning and the periodic size-control of the annular vent nozzles are extremely simple.
- Dust storage capacity is variable by the changing of the collector plates.
- Effektive cut-off diameter: 0,05 – 10,0 [µm]

## 1. Purpose

The immission sampling measuring system consists of the KS-701 eight stage cascade impactor ( Figure 1. and 2. ) and the KS-306.50-WI measuring and control unit, and is designed for fractional sampling of solid aerosol particles in fully automated mode.

The recommended field of application of the instrument is to measure the gravimetric size distribution of airborne particles in the fine fraction (below 10  $\mu\text{m}$ ) and to collect the fractionated particles for further analysis like determining the composition. The KS-701 is a new design of the cascade impactors with eight stage, where the data evaluation method also follows the new aerodynamic arrangement. *To improve the impaction efficiency and to decrease the size of the device the particles are accelerated to the necessary impaction speed in ring shape jets. In the eighth stage – depending on the temperature, when the flow rate reach  $q = 1,98-2,06 \text{ m}^3/\text{h}$  – local sonic speed develops.*

The KS-701 eight stage cascade impactor consists of a ring chamber venturi flow-meter integrated with the inlet, the eight stages and a backup filter.

The material of the catch plates and the backup filter is borosilicate or quartz.

## 2. Comprehensive technical description

The eight stage cascade impactor KS-701 type device offers completely new solutions. Even its evaluation system follows the latest fluid mechanical configurations. For the sake of increasing the impact effect and decreasing dimensions particles are accelerated in an annular nozzle to the proper impact velocity. The KS-701 type cascaded impactor consists of a lead-in diffuser, eight impactor stages and an backup filter.

To avoid reproduction errors occurring owing to the different adhesive capacity of particles, stages have a chamber configuration and are properly separated for scaling. The vacuum pump built into the KS-306.50-WI measuring and control unit establish a well designed air stream through the rain-hood and the ring chamber venturi flow-meter followed by the KS-701 cascade impactor.

The applied cascade arrangement permits the aerosol to be fractionated into a number of size intervals with decreasing size as the sample air passes the stages from the inlet to the outlet. The air passing the backup filter leaves the system through the exhaust-pipe and the vacuum pump.

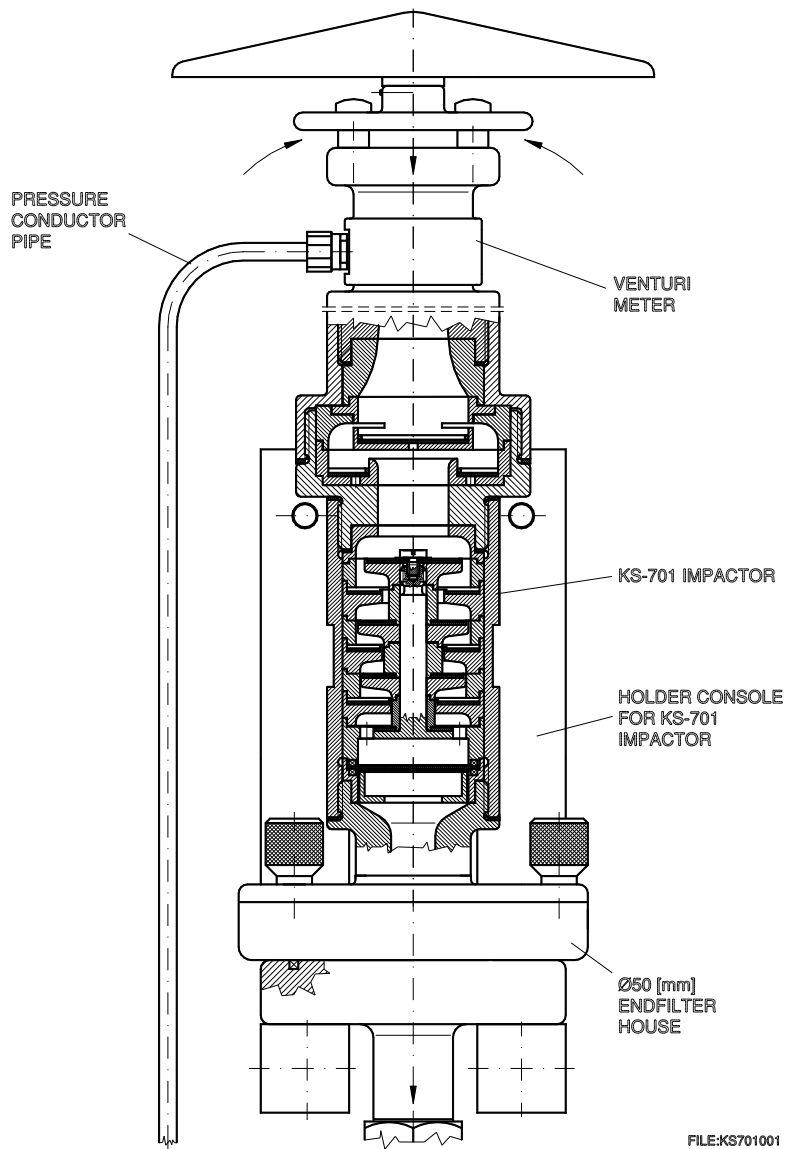


Figure 1.



Figure 2.

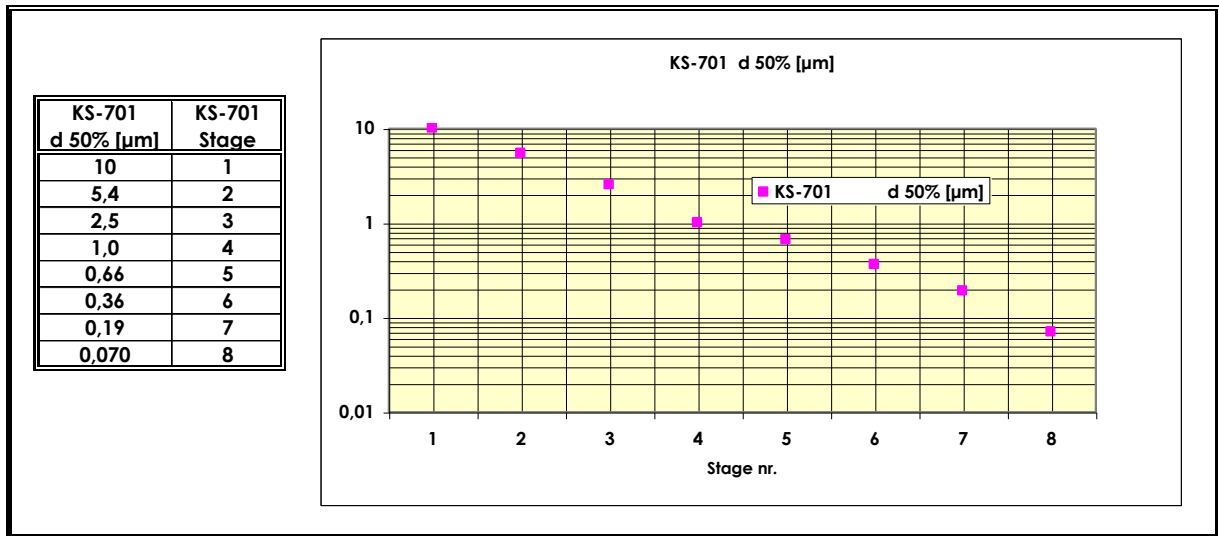


Figure 3.

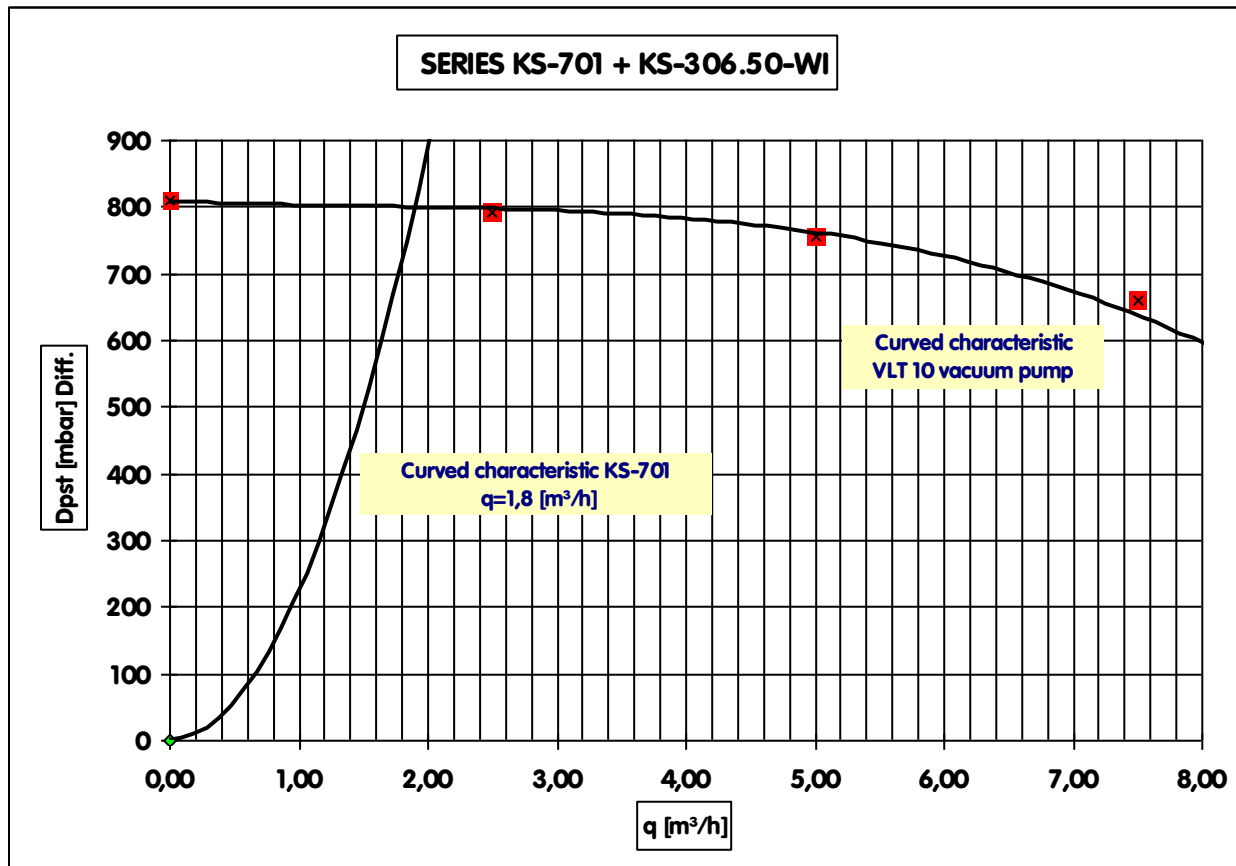


Figure 4.

### 3. Technical data

■ Nominal flow rate depending on t1	1,5 [m <sup>3</sup> /h]
■ Measuring range	0,9 to 2,8 [m <sup>3</sup> /h]
■ Impactor stages d(50%)	figure 3.
■ Number of impactor stages	8
■ Particle separation values – cut points	AR-COM KS-701 software
■ Back-up filter	Ø 50 [mm]

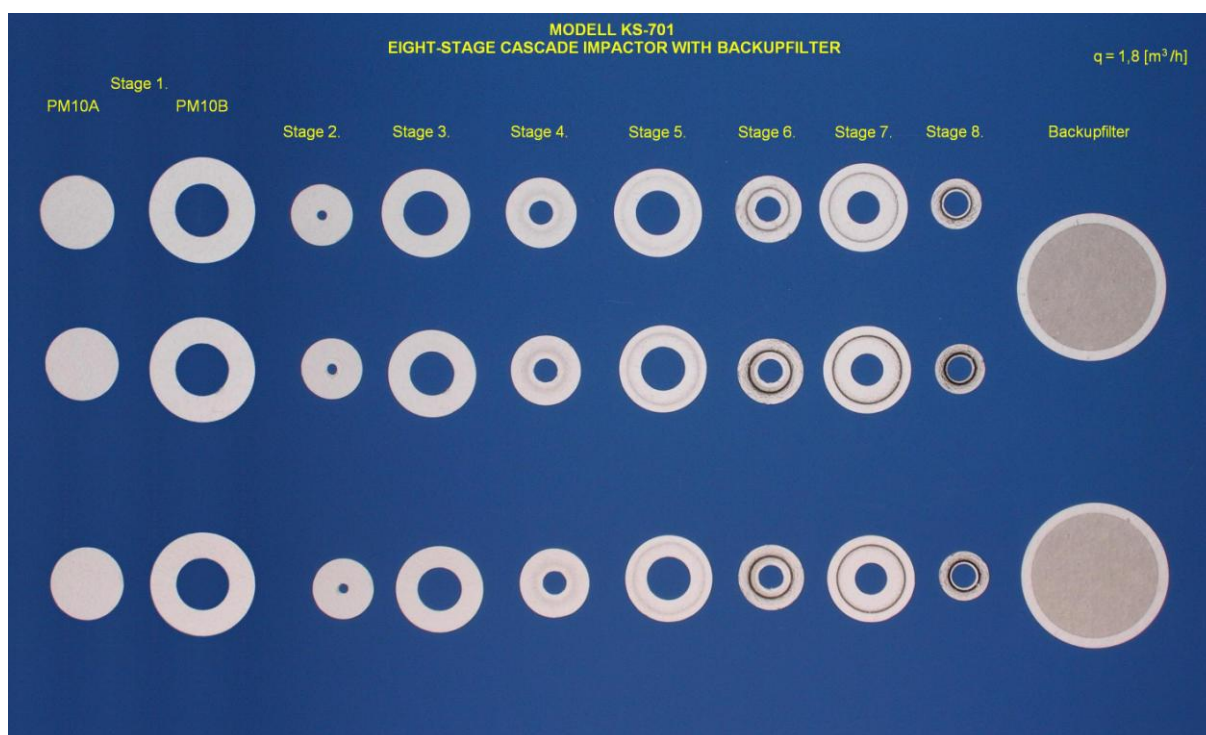


Figure 5.



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