ISP 1000



Representative sample taking is one of the basic requirements to measure aerosols correctly with a high-quality aerosol spectrometer, e.g., the welas® digital or the Promo® system. To always have a repeatable and representative sample taking, Palas® provides the sample-taking system ISP 1000.

Operation principle

Aerosol sampling unit

Important parameters for the sample taking are:

- Isokinetic suction with isokinetic inlet nozzles AIP
  - The velocity at the inlet of the sample taking must be the same as the gas velocity at the point of sample taking to avoid a demixing of the aerosol.
  - The suction airflow for the welas® aerosol sensors is fixed, and the inlet diameter for the isokinetic aerosol sampling nozzle can be varied. Therefore Palas® offers a vast variety of different aerosol sampling nozzles AIP.
- Minimization of particle losses in the sampling tube with the ISP 1000
  - Generally, there are losses in sampling tubes caused by diffusion, sedimentation, and impaction. Therefore, the Palas® sample taking tubes are especially selected for the operation with the welas® aerosol sensors. Roughness and differences in the tubing diameter, which may cause additional particle losses, are avoided.
- Orientation of the sample taking in the duct
  - After installation of the sampling tube into the duct, the sampling tube's orientation is often not visible. Thus the ISP 1000 is equipped with an indicator of the sample probe direction.
- Representative location of the sampling point
  - The aerosol distribution inside the duct is very often not homogenous. To adjust a representative point of aerosol sampling and to fit this point to different duct sizes, the sampling tube can be moved upwards and downwards.

Description	For flow velocity in the duct
AIP 103	0.008 – 0.012 m/s
AIP 86	0.012 – 0.017 m/s
AIP 72	0.017 – 0.025 m/s
AIP 60	0.025 – 0.036 m/s
AIP 50	0.036 – 0.052 m/s
AIP 41	0.052 – 0.074 m/s
AIP 35	0.074 – 0.11 m/s
AIP 29	0.11 – 0.15 m/s
AIP 24	0.15 – 0.22 m/s
AIP 20	0.22 – 0.32 m/s
AIP 16.6	0.32 – 0.46 m/s
AIP 13.9	0.46 – 0.66 m/s
AIP 11.6	0.66 – 0.95 m/s
AIP 9.6	0.95 – 1.37 m/s
AIP 8.0	1.37 – 1.98 m/s
AIP 6.7	1.98 – 2.85 m/s
AIP 5.6	2.8 – 4.1 m/s
AIP 4.6	4.1 – 5.9 m/s
AIP 3.9	5.9 – 8.5 m/s
AIP 3.2	8.5 – 12 m/s
AIP 2.7	12 – 17.5 m/s
AIP 2.3	17.5 – 21 m/s
AIP 2.0	21 – 31 m/s

Table 2: AIPs / Overview sampling probe points AIP for sampling probe volume flow of 5 l/min and standard sampling tube (stainless steel: inner diameter: 6 mm, outer diameter: 8 mm)

BENEFITS

- Exchangeable isokinetic sampling nozzles for different gas velocities
- Indicator for sample tube orientation
- Adjustable height of sampling point
- Easy installation to the welas® aerosol sensors

DATASHEET

Diameter	Inside = 6 mm, outside = 8 mm
Dimensions	Tube length 1: 200 mm, tube length 2: 500 mm, tube turn: 90°

Applications

- Isokinetic sample taking for welas® aerosol sensors out of gas flows
- Sample taking in accordance with EN 779, ASHRAE 52.2, ISO FDIS 16890 for welas® aerosol sensors

Mehr Informationen:
https://www.palas.de/en/product/isp1000