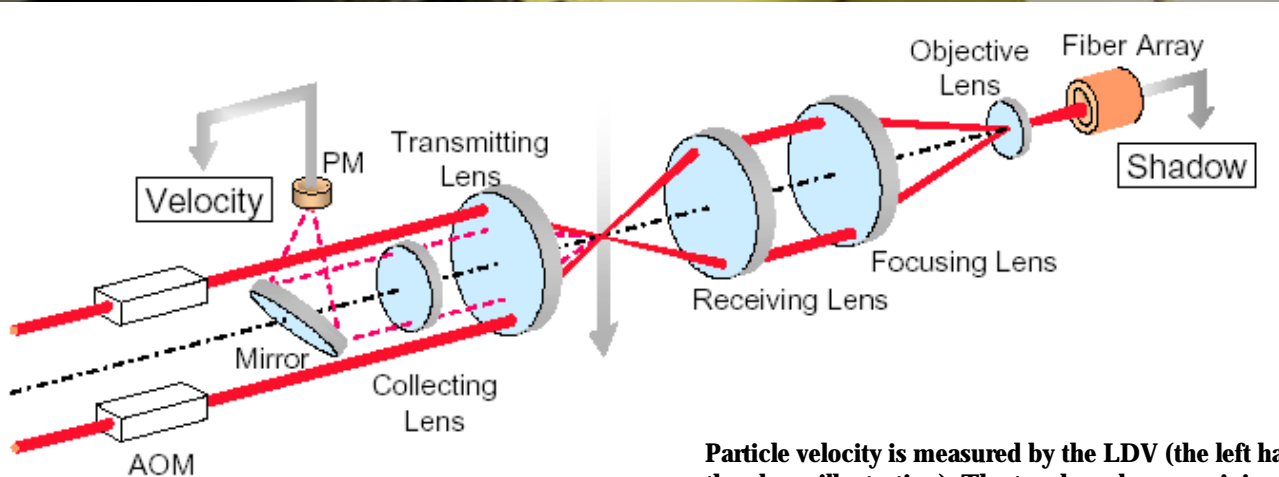


Shadow Doppler Particle Analyzer (SDPA)



Kanomax SDPA realizes simultaneous and in situ measurement of shape and velocity of arbitrary-shaped particles by combining conventional Laser Doppler Velocimetry (LDV) and the receiving optics that detect shadow images of particles with a linear fiber-array sensor.

Particle velocity is measured by the LDV (the left half of the above illustration). The two laser beams originating from the same source intersect each other at the focal point of the transmitting lens, forming the measuring volume for the LDV. Particles passing through the measuring volume give light scattering signals for velocity.

Particle shape is measured by the receiving optics (the right half of the above illustration). The two laser beams cross at the secondary focal point. The image is magnified by the objective lens and projected on the linear image detector consisting of an array of 64 optical fibers, each of which is connected to an avalanche photo diode (APD). Shadow images of particles can be reconstructed from the temporal series of the "sliced" images.

Features and Benefits

1. The SDPA measures not only particle size but also shape. This means that the SDPA can be used for non-spherical particles.
2. The measurement of particle shape is not affected by optical properties of the particles. This feature achieves greater freedom in measurement of particles in chemical reactions, paint spray, etc.
3. The SDPA shows direction of the particle passage projected on the focal plane. Two dimensional velocity can be measured.
4. The SDPA requires no calibration with particles of known size because all parameters necessary for measurement are obtained from the geometrical arrangement of the optical system.
5. The SDPA provides accurate estimates of particle concentration from the position of particle trajectory.

Specifications

Particle Concentration	103 particles/cm ³
Dynamic Size Range	15 to 1
Particle Size Range	5 μ m to 1 mm
Size Accuracy	4% (spherical), 10% (non-spherical)
Particle Velocity	100 m/s (19,680 fpm) maximum

As products are continuously upgraded, the contents of this brochure are subject to change without notice.



KANOMAX
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