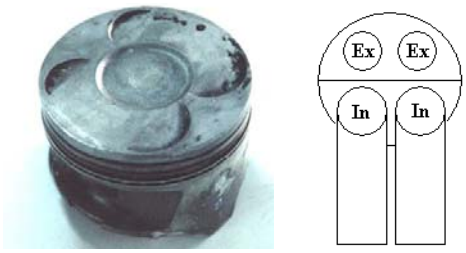
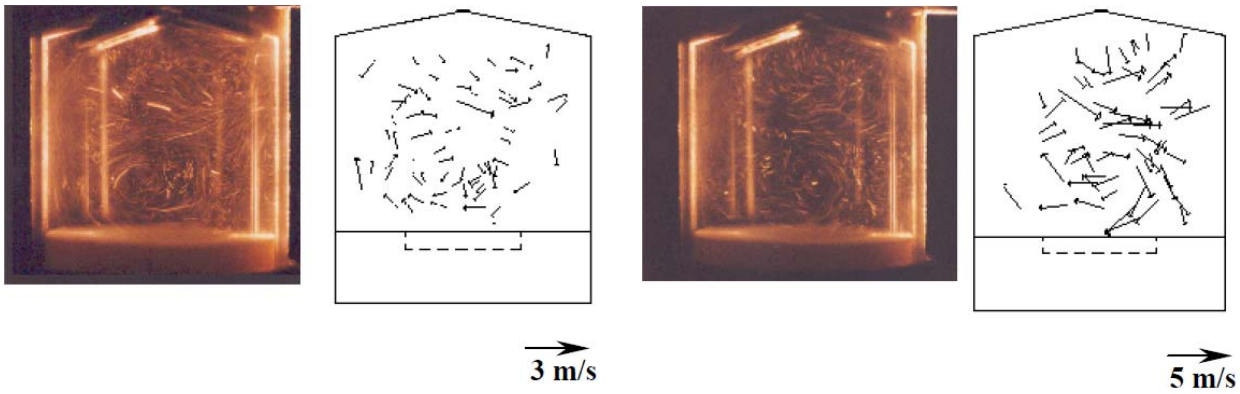
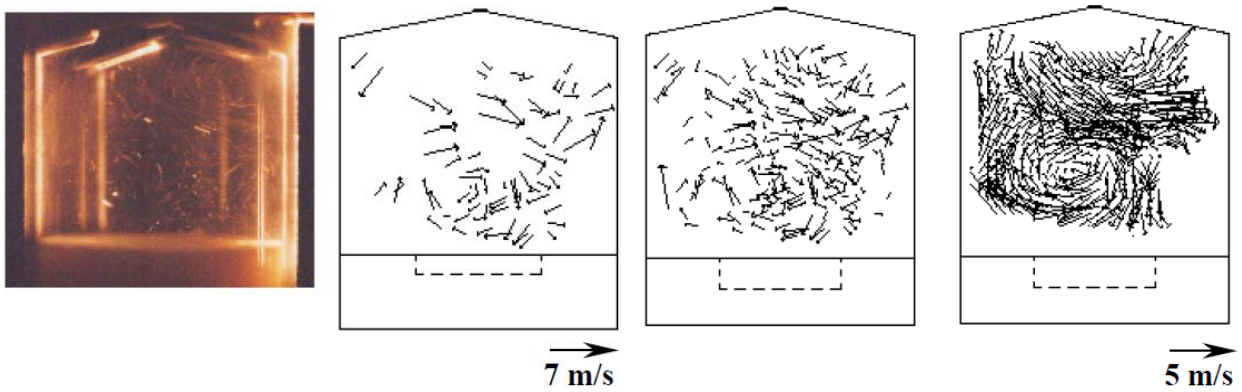


Figure 1. Test piston with flat type and configuration of intake port with parallel type



(a) Exposure time 1/60 s. (b) Exposure time 1/90 s.



(c) Exposure time 1/125 s. (d) Measured and interpolated velocity fields

Figure 2. Images of particle path lines and velocity fields in case of parallel intake port and flat type piston

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VISUALIZATION OF IN-CYLINDER FLOW OF AN ENGINE BY PIV TECHNIQUE

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This research deals with the study of flow characteristics in combustion chamber (Fig. 1). A PIV method was adopted to measure the in-cylinder flow in an engine. The particles were supplied to the intake air stream. A still camera recorded the particle path lines. The velocity fields inside the combustion chamber were calculated from the length of path line and the camera exposure time. Figure 2(a-c) shows the photographs of the particles and velocity distribution in case of parallel intake port and flat type piston at 90°ATDC with different shutter speed 1/60, 1/90 and 1/125 sec. Fig. 2(d) shows the measured and interpolated velocity fields. The vortex forms below the intake valves the velocity has slows flow and right interpolated velocity field of conventional piston with intake port parallel type. That tumble becomes small and slow.