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Plane shock compression generators, utilizing convergence of conical shock waves DMITRY NIKOLAEV, VLADIMIR TERNOVOI, ALEXANDER SHUTOV, VADIM KIM, Institute of problems of chemical physics RAS — The results of experimental testing of shock wave generators, based on Mach reflection of shock waves in a conical geometry, along with the results of numerical simulation will be presented. The hypervelocity shock in a layered cylindrical central body was produced by an impact of a converging conical flyer plate. Unlike in the designs proposed in the 80's, a conical flyer plate was originating from initially cylindrical cavity liner in a cylindrical HE charge, was launched by a sliding detonation. This approach led to device simplification, since precision manufacturing of conical parts from metal and explosive is no longer required. The sequential HE charge detonation by a 234 points distributor was employed to vary the launch angle. Five various launch angles were tested; the dependence of parameters of shock wave in cylindrical PMMA core on launch angle was investigated; shock velocities of 14-19 km/s were obtained in a PMMA cylindrical core. It was found that launch angles below 10° lead to the failure of the Mach reflection mode, while larger angles produced flat Mach disks with 16-17 mm diameter that could be utilized in various shock experiments.

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