

**Name of the organization**

Karlsruher Institut für Technologie (KIT)

Name of the infrastructure / laboratory

HYKA-PET (a Partially Vented Explosion Tube)

Address and country of the infrastructure / laboratory

Karlsruher Institut für Technologie (KIT), Campus Nord, Hermann-von-Helmholtz-Platz 1 - 76344 Eggenstein-Leopoldshafen, Germany

Person responsible of the access / Contact person

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Main field of activity of the infrastructure / laboratory

► Hydrogen safety, transportation, refueling

Short description of the infrastructure / laboratory

The partially vented explosion tube has an internal diameter of 100 mm and a length of 7 m. It also can be filled with regular ring shaped obstacles with different blockage ratios (BR: 0.3, 0.6), spaced by the tube diameter. Its main features are the variable transverse vent openings, which can be adjusted to vent ratios from 0 to 40%. The tube is connected to a gas filling system and again numerous sensor ports are available. It is equipped with a gas filling system and a large number of sensor ports. The tube offers the possibility to investigate the effects of variable transverse vent openings on the combustion process in order to reproduce flame propagation in a multi-room geometry in presence of openings (like windows and doors in reality). It is even possible to conduct experiments with a combustible surrounding atmosphere, which can be generated inside a thin polyethylene film around the tube.

Main research area(s) of the infrastructure / laboratory

Hydrogen combustion and detonation in vented areas, deflagration and detonation initiation in partially confined geometries.

