

**Name of the organization**

Health and Safety Executive

Name of the infrastructure / laboratory

ExCell – Explosion Cell

Address and country of the infrastructure / laboratory

Health and Safety Laboratory, Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom

Person responsible of the access / Contact person

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Main field of activity of the infrastructure / laboratory

► Transportation and Refueling Infrastructure

Short description of the infrastructure / laboratory

The vented enclosure consists of a number of modules, each of which has a 2.5 m x 2.5 m cross section and is 2.5 m long. These modules can be bolted together to give a vessel with a total length of 30 m giving a total internal volume of 187.5 m³. The modules are made of steel and ventilation can be provided by a centrifugal fan with variable fan speed, located at one end of the enclosure. The enclosure can be instrumented as appropriate and fitted with explosion relief, to protect the modules in the event of unexpectedly high pressures being generated during an ignition test.

Main research area(s) of the infrastructure / laboratory

Recent experiments with this facility have included an assessment of the blast damage to vehicles located inside the modules and pressure measurements of hydrogen explosions either from a jet release into a congested area or from a static hydrogen-air mixture ignited inside a congested space.

Instruments and tools available for the above mentioned research

Pressure transducers suitable for deflagration measurement - Choked flow orifice plates - Hot wire anemometers - Cages with congestion



The vented enclosure



The end plate and the centrifugal fan