



Cold Chamber



Laboratory of Automotive Engineering has a cold chamber located centrally in the main hall of the laboratory. The cold chamber has massive walls and because of this the inside temperature of the cold chamber has very stable behaviour. On the other hand fast changes of the temperature are not possible.

The doorway height is 2,7m and width is 2,5m. The room it self has height of 3,2m, width of 3,5m and length of 5,0m. There are two small doorsteps (20mm) on the way to cold chamber. It is possible to drive with passenger car or van into cold chamber. Trucks can be driven indoors but with distance of 8m from the doors of cold chamber.

There are two separate cooling systems for the cold chamber. The main system (-50... +50 C°) used a large ceiling mounted vaporizer with tree fans and two separate compressors for different temperature areas. This system has temperature control mounted in the inner wall of the chamber. The other cooling system is indirect system based on cooled glycol liquid. With this system temperature can be controlled between +10 to -10 C° with high accuracy over long period. The control thermostat can be location can be adjusted in the cold camber depending the demands of the test.



In the picture there is shown the both cooling systems inside the cold chamber. The smaller white one is for the glycol system. It has one low velocity fan blowing the air vertically in order to avoid massive air stream and noise.

From the glycol cooling system can also take out cold glycol with hose coupling, picture at right. The flow rate can be controlled separately between 4 litres up to 50 litres per minute. There is 200 litre insulated tank of glycol in the system.





HELSINKI UNIVERSITY OF TECHNOLOGY

Laboratory of Automotive Engineering

In both cooling systems inside the cold chamber there are heating resistors to prevent ice developing during long period tests. In the cold chamber there are three inlets for exhaust gas extractor. There is a monitor room next to cold chamber.

There are large variety of different gauges in the cooling systems. The system can also be used in educational purposes of cooling technology.



Cold chamber has been used in very large variety of tasks during the 35 years of service from diving into testing of hydraulic systems. These 35 years includes several renewing of the equipments. Today most of the research is done in areas of tyre - ice friction with different types of devices like Mini- μ -Road and Shear box. There is a portable weather station for logging and

monitoring climate conditions inside the cold chamber in want location or test setup

External partners can also lease the cold chamber.

