



VEHICLE SEMI ANECHOIC CHAMBER (VSAC)

Description

CSA Group Leyland's VSAC (Vehicle Semi Anechoic Chamber) chassis dynamometer enables vehicle performance and noise development to be conducted in a controlled and repeatable environment with very low levels of background noise. The chamber has been constructed in a large concrete structure weighing over 1200 tonnes, mounted on springs to isolate it from the main building and lined with sound-absorbent wedges.

A twin roller, absorbing and motoring dynamometer is also installed under the floor enabling various driving conditions to be simulated on a single/double drive axle vehicles. Test vehicles can be operated under constant speed or transient conditions with any required tractive effort.

Typical Applications

- Vehicle internal & external noise development / analysis
- Investigation of noise transmission paths / mode analysis
- Vehicle performance
- Exhaust brake tests
- Power / tractive effort measurements
- Fuel consumption tests
- Cooling trials
- Noise & vibration data analysis with LMS Test.Lab hardware and software
- Benchmarking / characterisation / design validation
- Powertrain noise investigation
- Disconnect exercises
- Measurement of noise transfer function
- Driveline ad axle investigations / durability / vibration



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Specification:

Working area:	19m x 9m x 5m high
Background noise level:	Down to 40 dB linear
Lower cut-off frequency:	70 Hz – above this frequency sound absorption is 99%
Dynamometer	
Power absorption:	495 kW (50 – 130 km/h)
Drive back:	300 kW at 30 km/h 480 kW at 50 – 130 km/h
Tractive effort (steady state):	36 kN
Speed:	0 – 130 km/hr (controllable to +/- 0.1 km/h)
Roller (two pairs):	1200 mm diameter @ 1350 mm centres
Tyre sizes accommodated:	700 – 1200 mm outside diameter
Axle load simulation:	135 kN single, 200 kN twin axle
Road load simulation:	Vehicle inertia 0 – 40 tonnes Rolling resistance up to 8 kN Simulation of wind drag up to 40 kN Simulation of positive or negative gradients up to 40 kN
Braking inertia:	Mechanical flywheels with added electrical simulation up to 20 tonnes
Max. braking force:	200 kN (equivalent to 1g at 20 tonnes)
Chamber ventilation:	Noise-free extraction at up to 3.5 m/s ram-air flow by auxiliary fans for cooling trails