

Coastdown Software



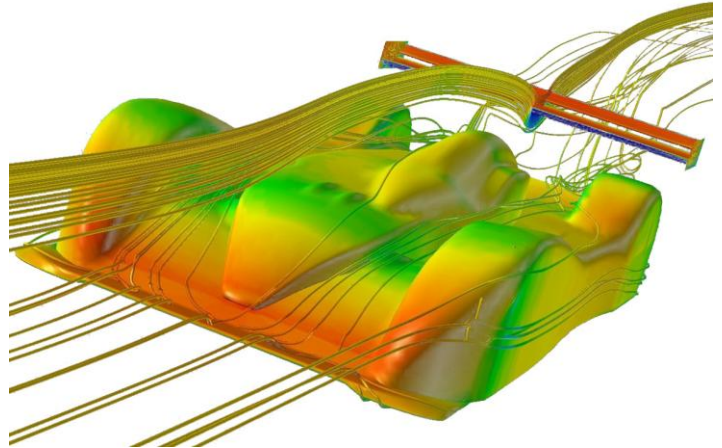
Overview

Effective aerodynamics is an essential part of overall vehicle design and manufacturers can assess developments to the aerodynamics of their vehicles by performing a coastdown test.

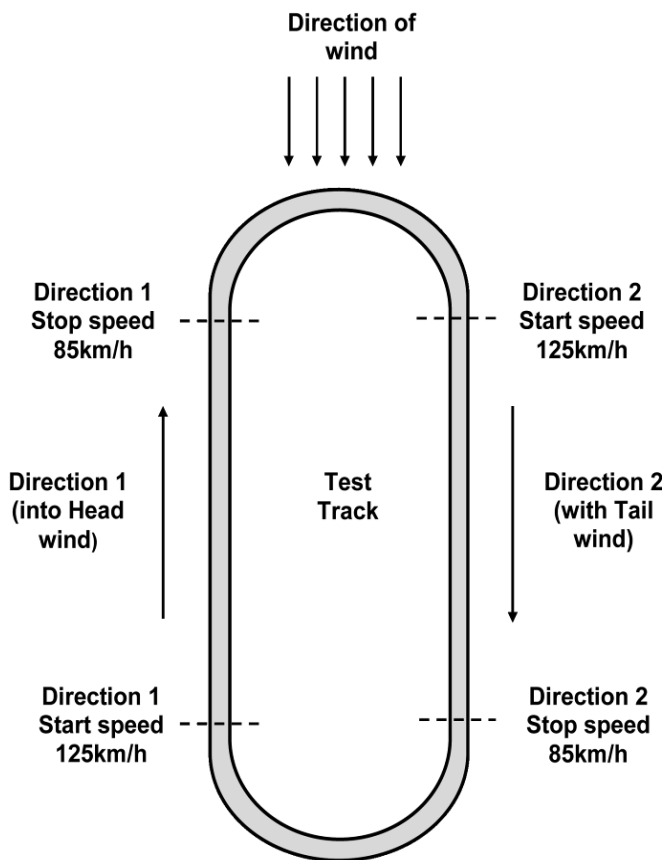
This is a test in controlled conditions which measures the effects of wind and road resistance, based upon time taken for a vehicle to coast from one speed to another, with the engine in neutral gear.

Racelogic has developed a new software package for use with any VBOX 3i and VBOX III to ensure that this test is repeatable and accurate.

The software takes test data and performs statistical analysis in real time, to provide an immediate indication of when the required statistical accuracy has been met.



Computer modelled example of the effects of vehicle aerodynamics



Test method

The test is performed in accordance with **European Directive 70/220/EEC – Annex III** and is based upon statistical evaluation of a minimum of 4 test runs. The test can be performed at any speed according to the manufacturer's requirements, but must follow the general procedure below:

1. Accelerate the vehicle to a speed 10km/h greater than the test start speed (user definable – 125km/h in the opposite diagram)
2. Place gearbox in neutral
3. Measure the time taken for the vehicle to decelerate from the start speed to the stop speed (user definable – 85km/h in the diagram).
4. Repeat steps 1-3, but in the opposite direction.
5. Take the average time of these two runs
6. Repeat steps 1 to 5 until such time that the statistical accuracy of the average values is not more than 2% (minimum 4 tests required). Note: the software performs the calculations required to assess statistical accuracy.

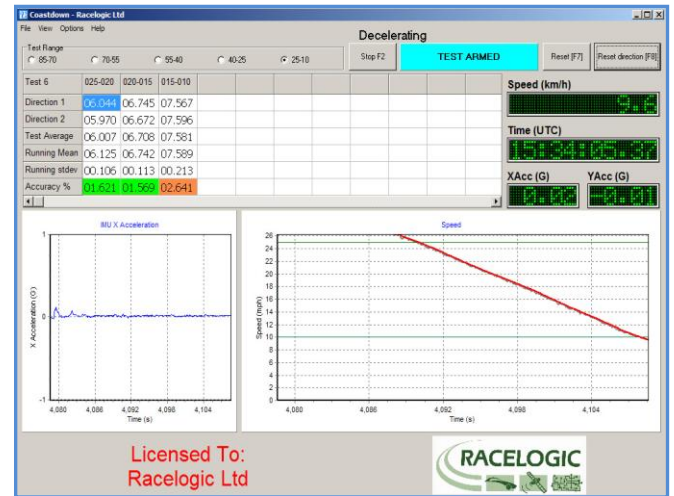
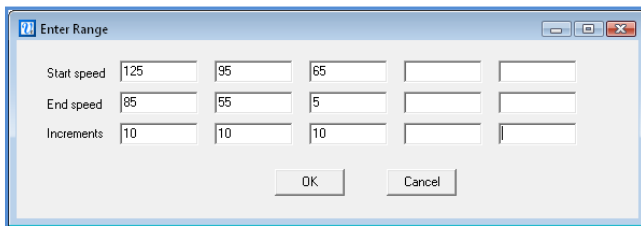
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The Racelogic solution

The Racelogic Coastdown software has been designed to be as simple as possible to use, whilst still offering full flexibility for the user.

Upon opening the software, a drop down Options menu allows the user to access sub-menu's in order to select the COM port from COM 1 – COM 6, the units of speed in either km/h or mph, the log file location by accessing the directory structure and the Custom Test Range screen for setting the start speed, stop speed and increments for each test range.



With the COM port, file location, speed units and test ranges set, the test can begin – its' as simple as that!

During the test, a velocity graph screen gives you a real time indication of your speed, along with a large, easy to read numerical display and clear indicators of the test status (TEST ARMED, WAITING FOR START SPEED and RUNNING). The table of results is updated with the coastdown times for each of the user defined increments in the test range, in both directions and with data for the average of these, the running average and the running standard deviation. From this, the software is able to compute when the required statistical accuracy of the average values has been achieved.

GPS & Inertial measurement

VBOX 3i features IMU integration, meaning that it has the ability to combine GPS and Inertial data from a Racelogic Inertial Measurement Unit in real time. Containing three accelerometers in the X, Y and Z planes, measurements from the IMU are seamlessly blended with the GPS data. This is useful for producing smooth, accurate data, particularly if you have a test site where view to the sky is obstructed, such as close to bridges, tall buildings and trees.

If you own a VBOX III, the Coastdown Software also has the ability to integrate the data from an IMU and the VBOX III, producing precise data in noisy conditions.



Key Features

- Simple to set-up and use
- User definable test range(s)
- Clear indication of required accuracy – no complicated data processing required
- Optimised for use with any VBOX 3i and IMU
- IMU integration for precise data in noisy GPS conditions
- Developed in accordance with EU directives, by the team that brought you the acclaimed VBOX Tools data analysis software.