

General Laboratory Description

The dynamometers in the test center simulate service conditions for railroad braking and automotive vehicle braking at any pre-set combination of speeds, loads and brake outputs.

With the brake mechanism disengaged, a dynamometer's electric motor drives inertia flywheels to a speed which develops the equivalent energy for specific tests. Brake applications are then made and length of stops recorded, along with many other measurements of the brake material's performance. All dynamometers are equipped so that they may be programmed to perform any cycle of stops required, and to feed data out in recorded form or directly to computer. The largest dynamometer in the test center is capable of an emergency stop equivalent to that for a 500-ton locomotive traveling at 100 miles per hour (far beyond present needs).

Sustained braking on a grade, called drag braking, can also be simulated, as well as braking under conditions of high temperature, moisture and the presence of foreign materials. On the two large railroad dynamometers, brake shoes are applied directly to the treads of standard locomotive or freight car wheels. Therefore these machines are often used for the development and testing of railroad wheels produced by Abex.

While the Engineering Test Center is Abex's newest laboratory, it is staffed by engineers of many years' experience with friction materials, and is an integral part of a research group whose investigations into the performance of friction materials go back over fifty years.