



WEAR MEASUREMENT SYSTEM

The ISC-200 Tribometer System is a device for measuring the wear on a material's surface. The system is marketed by Implant Sciences Corporation (ISC), Wakefield, Massachusetts, a company that provides a wide range of surface treatment and modification products and services, such as direct ion implantation, ion beam sputter coating and cathodic arc coatings.

The ISC-200 is a pin-on-disk type of tribometer. It somewhat resembles and operates much like a conventional record player. The pin-on disk test involves rotating the disk or pin specimen, which are in contact with each other (above); the rotation creates



a wear groove on the surface of the disk. The system can be used to measure the coefficient of friction, the wear behavior between materials, and the integrity of thin films or coatings.

The ISC-200 Tribometer has biomedical applications, for example, measuring friction or wear on orthopedic devices, such as the parts, shown at lower left, used in knee and hip joint replacement, it also has utility in electronics manufacture, such as testing disk drives or tape drives, and in the automotive industry as a means of testing coatings on body parts or measuring wear on engine parts.

The ISC tribometer was originally developed by Lewis Research Center as an in-house wear test apparatus. ISC, working on a NASA

contract to develop coatings designed to enhance the wear capabilities of materials, had no way of testing the coatings they were developing. The company initially adapted the Lewis device to its own use, then converted the laboratory apparatus to a user-friendly commercial system that eventually became a complete line of tribometers. The first commercial versions were marketed in 1991; since then ISC has advanced the technology considerably; current systems can maintain a variety of simulated conditions, including controlled humidity, body temperature, high temperature and high vacuum.

