MTM Reciprocating Option

Allows Disc to oscillate at stroke length amplitudes of 4, 6, 8, 12 or 16 mm.

The stroke length amplitude can be selected by fitting the crank mechanism to one of the five holes in the large crank disc. This mechanism replaces the existing belt driven system for the disc and allows the disc to be driven in a continuously oscillating motion

Supplied Parts

Mechanical - Crank arm and connectors

Software - Additional Software Required

For some applications particularly when studying the behaviour of a lubricant under dynamic conditions an oscillating motion is more representative than a continuously rotating disc. The reciprocating option changes the rotation of the disc (lower specimen) into a reciprocating cycle, expanding the range of test conditions available on the MTM2.

With the reciprocating option the disc can be oscillated at very low frequencies, from 0.1 to 20 Hz. Such low frequencies of oscillation can create very severe contact conditions and therefore accelerated wear. This can be very useful when evaluating the anti-wear properties of lubricant and additive packages. The MTM2 reciprocating option offers many advantages over the conventional reciprocating ball on disc test. The ball can either be stationary as in the conventional test or have a unidirectional rotation. When the ball rotation is combined with the oscillating disc a number of unusual dynamic motions can be simulated.

A typical example is simulating the motion found between a cam and follower.

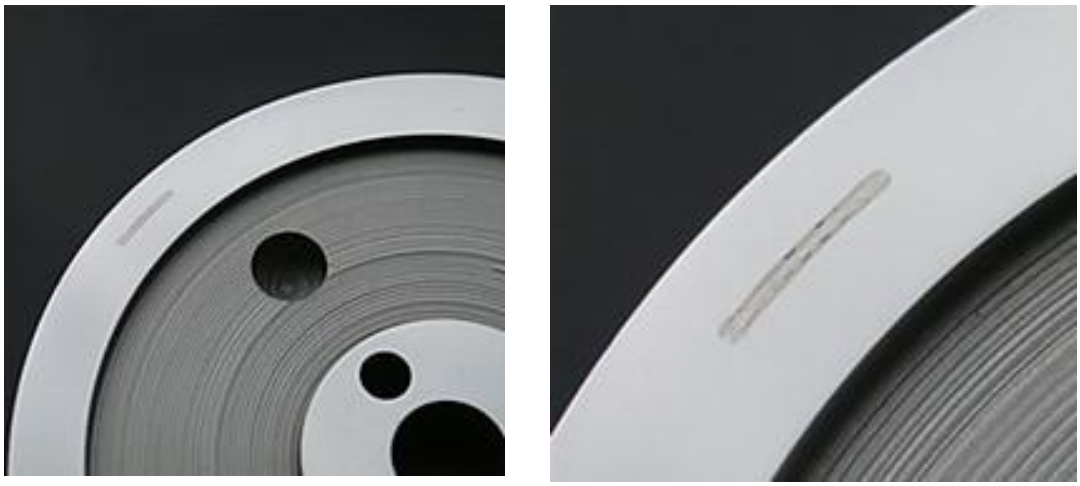

Figure 1: Scar on Disc (left) and Close Up (Right)

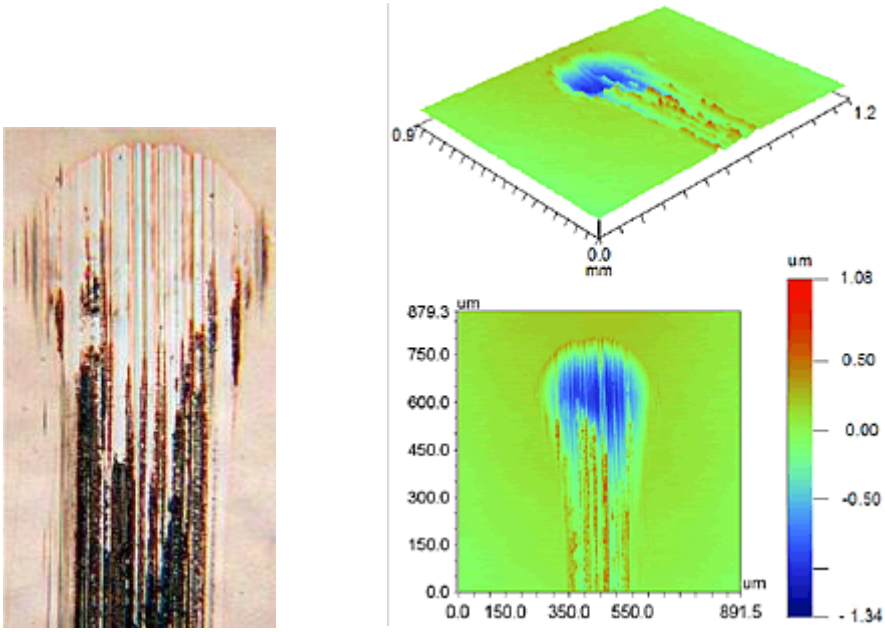

Figure 2: 2D and 3D maps generated with an optical profilometer

Cam follower simulation Standard cam-follower wear tests are costly both in terms of money and time. The reciprocating option makes it possible to perform these tests quicker and more cheaply. The pictures above show the wear scar on the disc after the test (1 & 2). Observation under microscope (3) reveals severe wear near the extremity of the scar, where the entrainment speed changes direction. The wear scar is deep enough to be measured with a profilometer (not supplied). View 4 shows 2D and 3D maps generated with an optical profilometer. The wear scar can be measure with a standard contacting profilometer as well.