News letter

tribology in industry

September 2010

Serbian Tribology Society

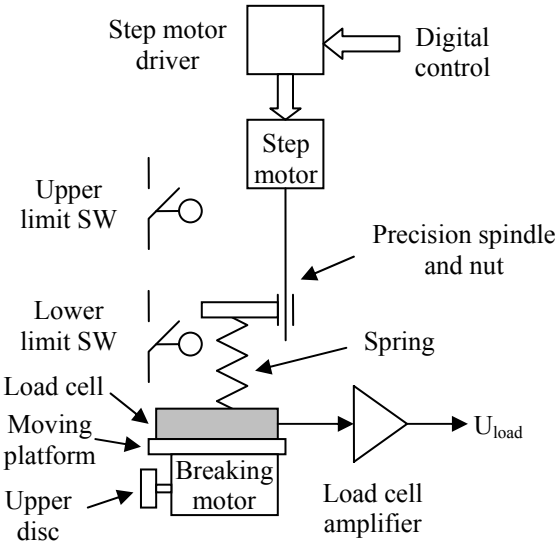
Serbian Tribology Society has developed a new group of tribometers for measuring of tribological characteristics of solid materials, coatings and lubricants according to ASTM standards.

Trbometers designed and manufactured in cooperation of Serbian Tribology Society and the company PRIZMA contains a unique system to load the zone contact in all types of tribological tests (Pin on Disk, Block on Disk, Disk on Disk and Pin on Plate).

Software for all types of our tribometers has developed on a joint basis with minor modifications for each particular tribometer.

Control of normal load

Normal load is one of most important test parameters. Control signal from computer is amplified and passed to step motor. Step motors are very suitable for such applications because they offer high resolution (we used one with 200 steps/rev), and very easy implementation of position control in open loop.

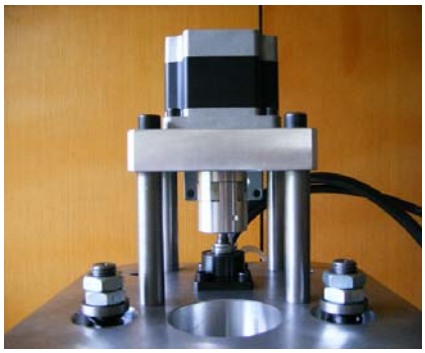


Block diagram of vertical force control subsystem

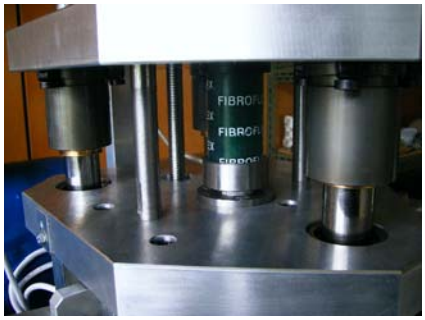
Control of vertical load is achieved by rotation of step motor in CW or CCW direction. During experiment it is possible to obtain various profiles of vertical load.

Signal from load cell is amplified by electronic amplifier and passed to data acquisition module.

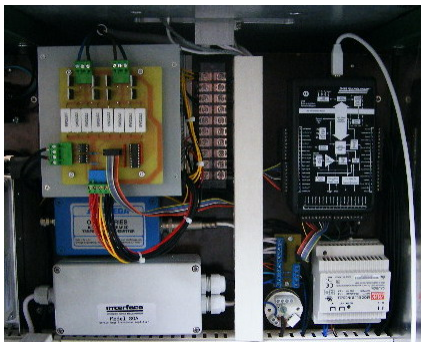
One interesting side effect of our approach is possibility of indirect measurement of wear in contact zone during test.



Step motor for obtain normal load – the part of load system



Tube spring and load button – the part of load system



The part of electronic box

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