

Variable Rolling to Sliding Fixture (VRS) (CETR MC)

Description

This test allows evaluating the performance of lubricating fluids when a combined rolling/sliding contact mode takes place in a system (0%; 15%; 35% or 65% rolling to sliding ratio). This fixture has been developed for studying gears, ball screw transmissions, pure rolling phenomena...

Conditions

Three cylinders/balls (rollers) are symmetrically placed at different positions with respect to the rotation axis. In the meantime, two discs trap the cylinders in between. When the test is running, the discs drag the rollers into a movement that combines both sliding and rolling due to a difference of the rotating radius of all the points along the cylinders.

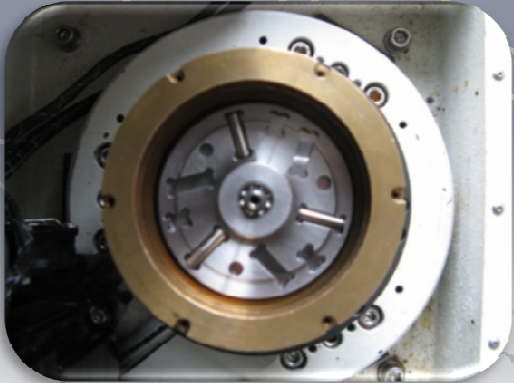
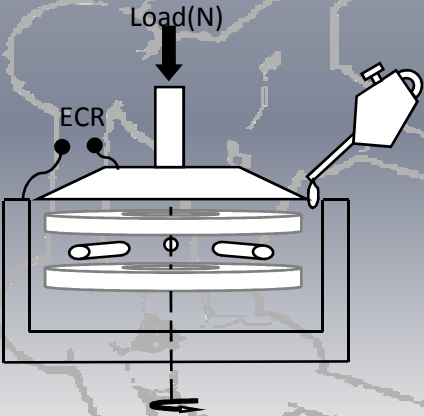
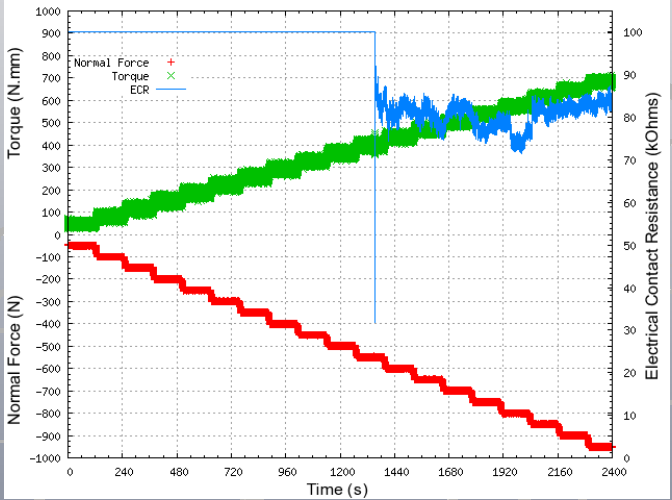
**Some additional sensors of the CETR-MC can also be used with this module:
Acoustic Emission & Electrical Contact Resistance.**

| Maximum rotation speeds | | | | | |
|-------------------------|-------------|------------|------------|------------|-------------|
| Sliding/Rolling | Normal Laod | | | | |
| | (0-100)N | (100-250)N | (250-500)N | (500-750)N | (750-1000)N |
| 15% et 35% | 3000 RPM | | | | |
| 65% | 3000 RPM | 2000 RPM | 1000 RPM | 500 RPM | 250 RPM |
| | 3000 RPM* | 2800 RPM* | 1400 RPM* | 700 RPM* | 350 RPM* |

* Estimated rotation speeds for a hardened steel separator .

Results

Example of results @ 35% R/S ratio: One can observe a break in ECR signal which denotes an hydrodynamic film breakdown, even if friction remains steady.



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