

## RollOilFree II Newsletter No 3

The pilot and demonstration project RollOilFree II aims to test oil free lubricants (OFL's) under industrial conditions for the cold rolling of packaging and automotive steels. The cold rolling process is a complex tribological system. Achieving precise geometric tolerances and high surface quality requires evaluating friction and wear under well-controlled mill conditions.

Because of the high technological complexity, first trials were performed at the **3-rolls-wear-test stand of BFI** (Fig.1). The main purpose of this equipment in lubricant development is:

1. First scale-up after lubricant laboratory development under cold rolling-like conditions with minimal effort.
2. Conducting long-term tests that would otherwise require significant material and time investment in pilot and industrial rolling mills.



Figure 1. Three-rolls-wear-test bench of BFI.

### Description of the 3-rolls-wear test stand

This test bench is suitable for investigations of mutual interactions of materials, coatings and lubricants under cold rolling conditions. Different materials can be chosen for the rolls and surface pressure of more than 1000 MPa can be applied in order to simulate the rolling conditions. It is possible to adjust the friction by means of rotational speed differences, normal force and variations of the lubricant.

