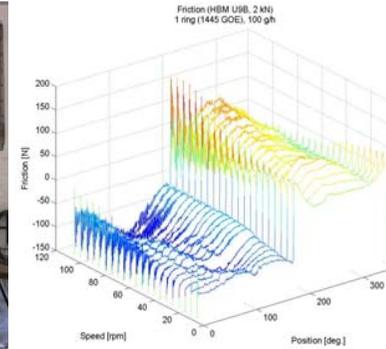


TASK 9.2: Tribo-optimisation

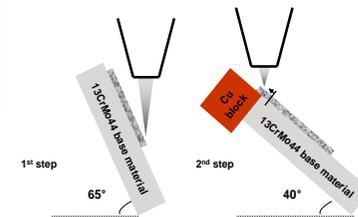
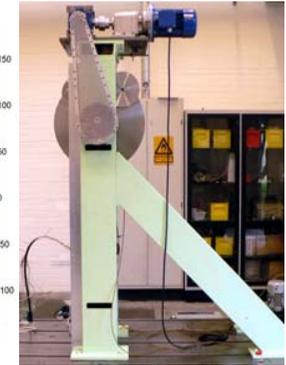
Objectives: Development of engine components with reduced friction losses – on-line control of cylinder condition by optimum lubrication

Final Results & Achievements:

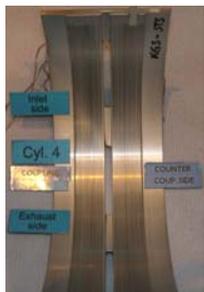
- Simulation tools for frictional losses: piston ring, piston skirt, main and crank pin bearings.
- Test rigs for verification of piston ring losses, pressure drops, ring movements have been developed, manufactured and tested.
- Simulation and optimization of the housing in a main bearing installation
- Development of connecting rod bearing shell material for a low friction application. Measurements of bearing shell temperature, oil flow-rate and specific fuel oil consumption.
- Laser cladding of piston ring groove specimens with increased wear strength has been manufactured. Maturing in progress.
- New sensors for online control of cylinder condition.



Piston Ring Friction Tester

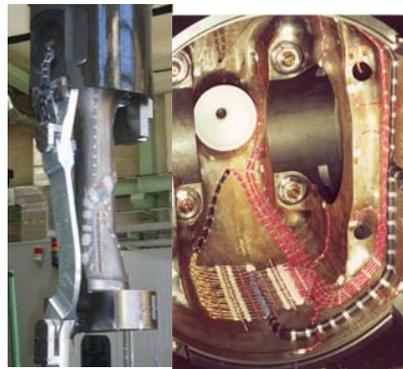
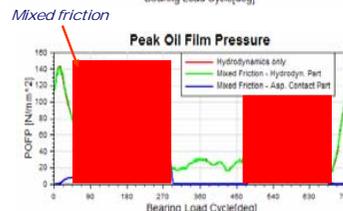
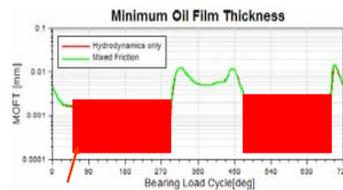


Laser Cladding of Ring Groove

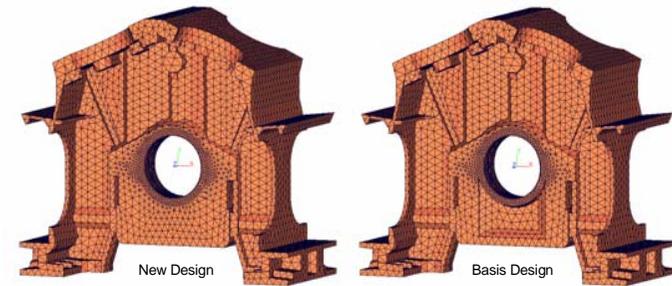


Comparison to Standard.	
Width of Bearing	-36 %
Oil Flow	+90 %
Temperature Rise	-5 %
Frictional Loss	-10 %

New Connecting Rod Shell



Measurement of Pressure Drop



New Main Bearing Cap Design

Partners:

