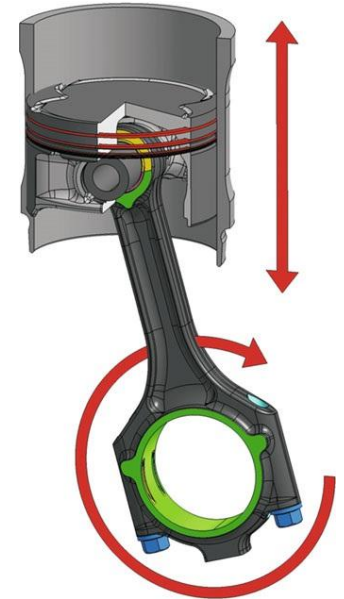


### Issue

For over a decade, the cracking of connecting rods for Diesel and Otto engines became industrial standard. Since the production methods has gained the maturity phase, many process-related challenges are already mastered and the failure rate has been steadily reduced. Nevertheless there is still potential to improve the manufacturing and assembly process of cracked con rods.

### Focus areas

Currently the contamination and spread of particles from cracked con rods in the manufacturing and assembly process moved in the focus of the improvements. In this context, the sources of particle formation and its spreading mechanisms are expected to get identified and reduced.



Piston and connecting rod [1]

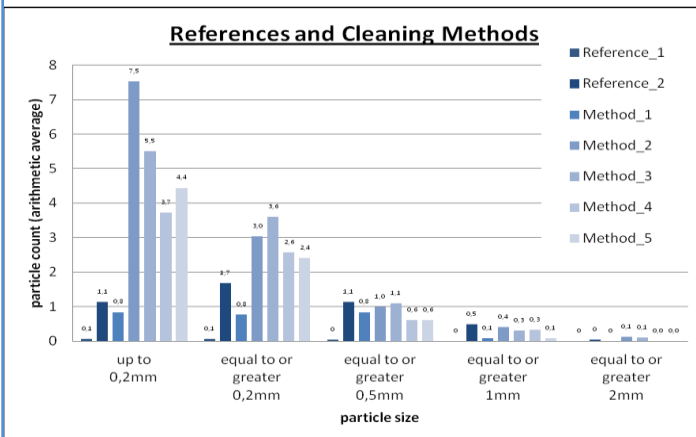
### Objective

Current and possible alternative cleaning methods are supposed to be analyzed and examined for effectiveness and their potential for improvement.



Cracked connection rod [1]

### Example results of preliminary study



[1] Mahle GmbH: Zylinderkomponenten: Eigenschaften, Anwendungen, Werkstoffe 1. Auflage, Vieweg+Teubner Verlag, Wiesbaden 2009