

Partners

- LUH: Leibniz University Hannover (Hannover)
- DTU: Technical University of Denmark (Copenhagen)
- MDT-CPH: MAN Diesel & Turbo, Marine Two-Stroke (Copenhagen)
- MDT-AUG: MAN Diesel & Turbo, Marine Four-Stroke (Augsburg)

Roles

- MDT-CPH: Integrated SCR design, NH_3 -slip investigation, compact SCR mixer
- MDT-AUG: Catalyst coating and filter test bed & selection, design of SCR on DPF prototype , along with modelling of urea injection and decomposition
- LUH: Test rig for investigation of urea injection and decomposition
- DTU: Test bed development of measurement technology and test engine investigations of SCR mixing and flow distribution

Subprojects

- 8.1: Engine integrated SCR for two-stroke diesel engines
- 8.2: Combined SCR and DPF (four-stroke)

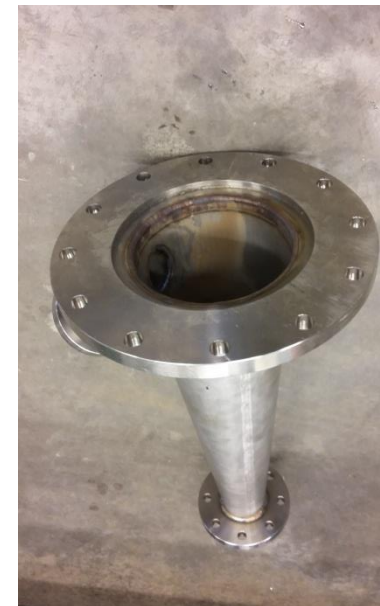
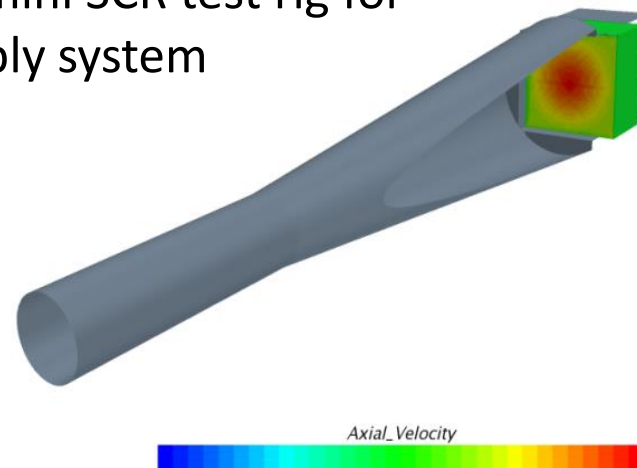
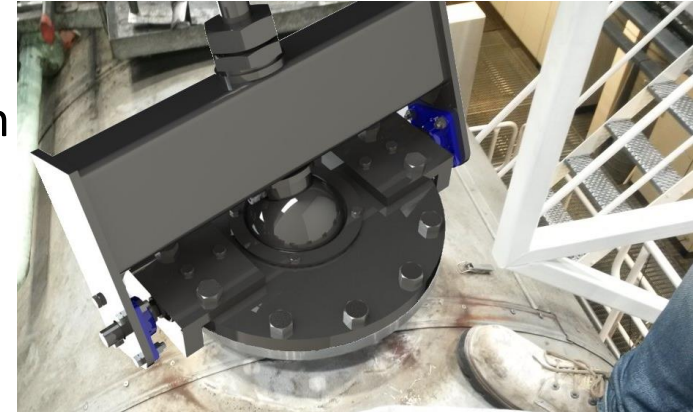
Activities

- 8.1.1: Emission control set-up for NH₃ slip
- 8.1.2: Measurement equipment for mixing and test bed for flow distribution
- 8.1.3: Compact SCR mixer with injection
- 8.1.4: Design and test of integrated SCR

- 8.2.1: Combined SCR and DPF screening on test bed
- 8.2.2: Design and test of combined DPF and SCR on four-stroke diesel engine

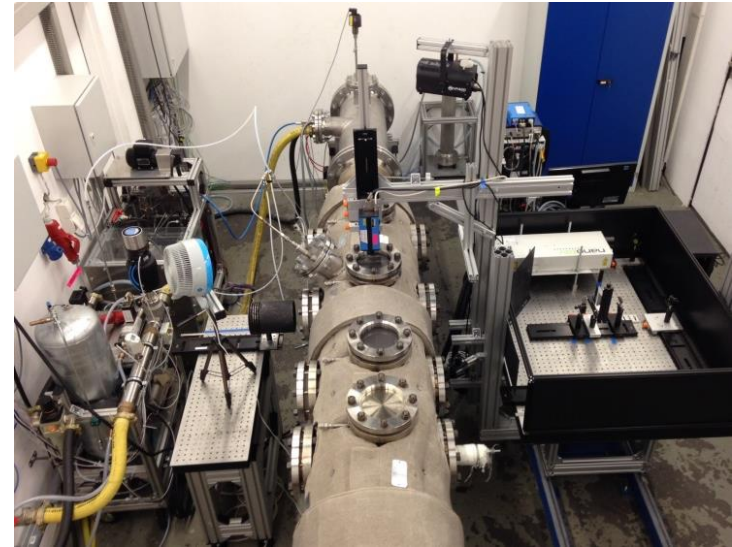
Main results achieved during 1st year

- Test of laser for NH₃ slip measurements. Emission control setup validated on shop test
- Design of mechanism for traverse measurements
- Flow in SCR systems: First measurements completed in a simple experimental setup. CFD Validation performed
- Design and procurement of a mini SCR test rig for 4T50ME-X, including urea supply system

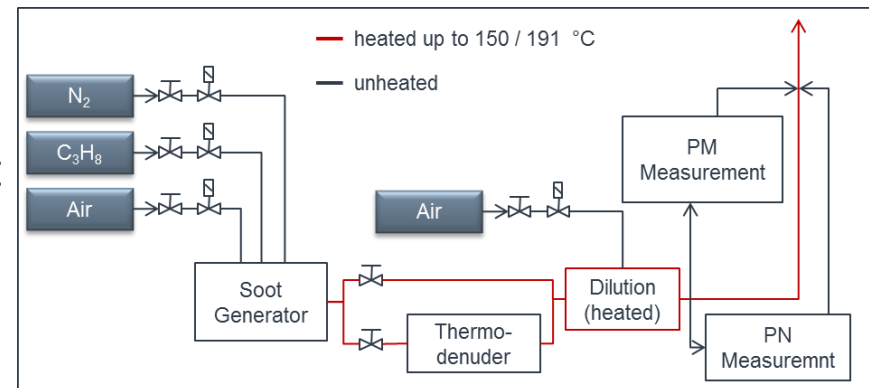


Main results achieved during 1st year

- Set-up of hot gas test rig completed and successfully tested (LUH)
- First measurements done (LUH)
- Design and procurement of synthetic gas test bed including particulate matter generation (MDT-AUG)
- Specification and procurement of high porous DPF substrates for SCR coated SCR on DPF system (MDT-AUG)
- Design and procurement of equipment for particulate matter generation and characterisation (MDT-AUG)



Hot gas test rig prepared for measurements



Particulate matter generation and characterisation

Future Work

- Assemble the probe system and test the system on 4T50ME-X. (DTU)
- For SCR flow investigation, a more detailed experimental setup will be build. Measurements and CFD validation will run in parallel. (DTU)
- Test on a High pressure SCR slip stream: Different catalyst, compact mixing and injection system will be tested. Test of urea evaporation, including CFD validation. (MDT-CPH)
- Design of engine integrated high pressure SCR for 4T50ME-X. (MDT-CPH)

- Particulate measurement data base (MDT-AUG)
- Pre-tests of EAT system components on engine test bed (MDT-AUG)
- Characterisation and investigation of SCR on DPF samples (MDT-AUG)
- Ongoing investigation of parameter variation on urea decomposition to be finished (LUH)
- Influence of mixing elements and other configurations (LUH)