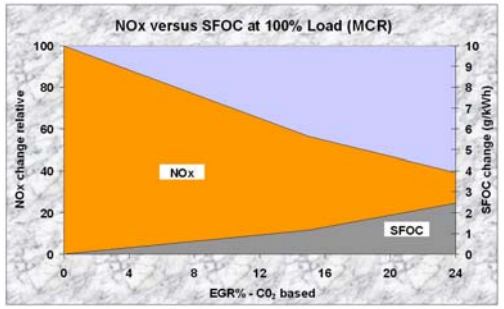
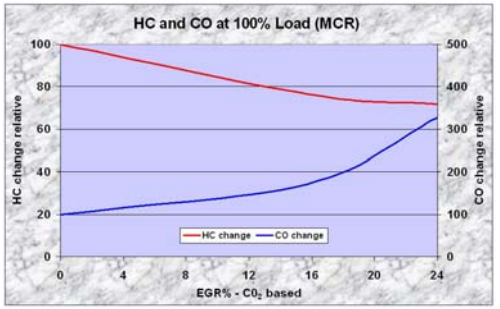
I.P. HERCULES - Task 7.2
Emission Reduction Methods
Final results – September 2007

EGR on 2-stroke marine diesel engines:

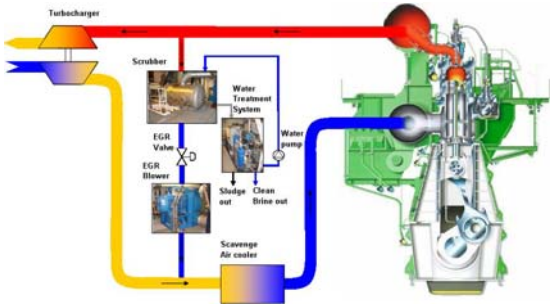
- Complete EGR application built on 4T50ME-X engine.
- NO_x reduced with 70% at 75% load and 60% at MCR with only slightly SFOC trade off.
- EGR did not jeopardise other environmentally critical emissions or engine components.
- Around 50 test accomplished with MDO and HFO



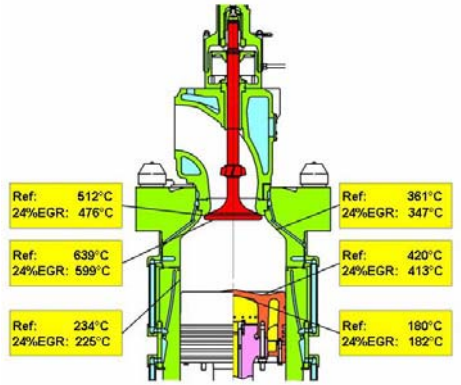
NOx versus SFOC



HC and CO as function of EGR percentage



EGR test application at 4T50ME-X



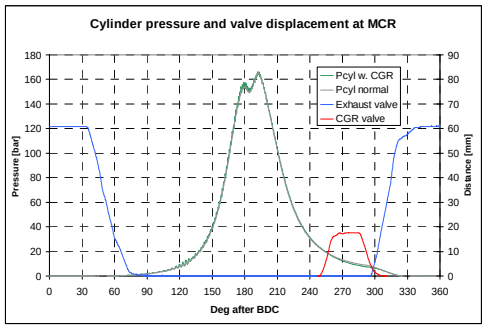
Component material temperatures at 24% EGR

CGR (Combustion Gas Recirculation) on 2-stroke marine diesel engines:

- New CGR valve developed and tested.
- Valve spindle and seat maximum temperatures at 640-700˚C verified.
- Around 15% of the exhaust gas amount was taking out by the CGR valve at MCR.

CGR valve application at 4T50ME-X

3D model of CGR valve



CGR test – cylinder pressure and valve displacement at MCR