

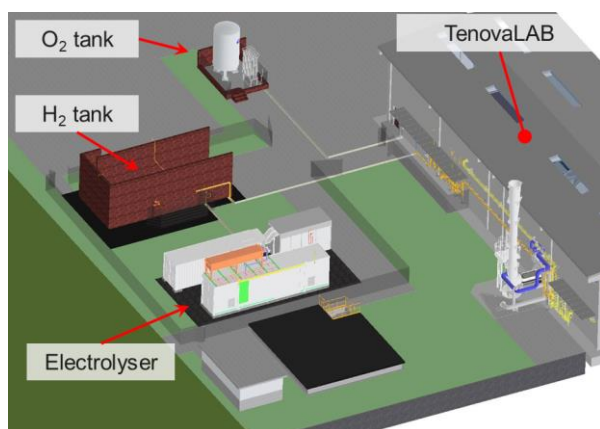
HyTecHeat Project

The project is aimed at hybrid heating demonstration in steelmaking downstream processes (reheating furnaces and refractory preheating). Three *democases* are envisioned: (1) a hybrid by-design burner designed and tested in a combustion chamber, directly fed by Green Hydrogen produced by purposely installed 1 MW electrolyser; (2) adaptation of a burner designed for Natural Gas to work in hybrid heating gas atmospheres (NG/H₂); (3) full scale testing of ladle preheating burners by a blend NG/Hydrogen.

Moreover, lab oxidation and descaling tests will be carried out on a large variety of steel grades.

DEMO CASE UPDATE

Design and permitting of Tenova Democase with installation of 1 MW electrolyser, in cooperation with SNAM and DENORA is completed.

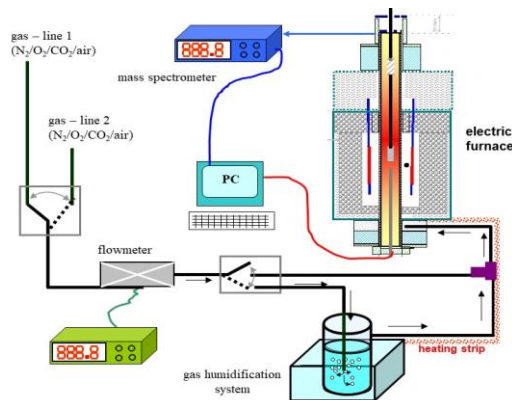


The Democases will be in operation on next October. The Green Hydrogen will be used to tests the innovative hydrogen burner.

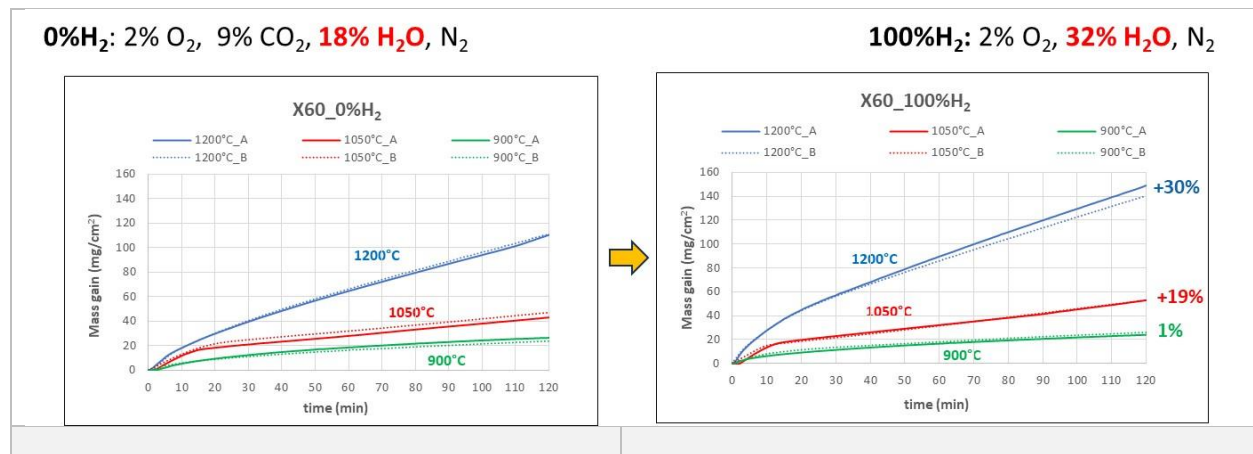
The Tenova TLX burner has been purposely improved within the project with oxygen inlet and instrumented with sensors for continuous flame monitoring

OXIDATION TESTS

Tests under atmosphere simulating hydrogen combustion are carried out on different steel grades, to evaluate the effect of steel composition.



Tests carried out by Rina CSM and AMMR revealed that increased amount of water vapour in a furnace atmosphere can enhance the scale formation. The kinetic of the reaction and in turns the oxidising effect of water is strongly dependent on temperature and steel alloys elements.



Thermogravimetric tests are carried out also on ladle refractory bricks. Scope of the tests is to evaluate if ladle preheating in hydrogen combustion atmosphere affects refractory materials.

