

FOSPER

Brief description: FOSPER (FOrnace SPERimentale – Experimental Furnace) is a replica of the former IFRF Furnace #1 of the IFRF Research Station in IJmuiden. This rig can be used to do any kind of combustion test on a semi-industrial scale. Thanks to the many observation windows it is possible to measure the profiles of the physical quantities inside the furnace and their behavior as a function of the combustion settings. This furnace has been used to characterize and develop new burners (Low-NO_x burners), to test alternative fuels and new combustion technologies such as Oxy-Fuel.

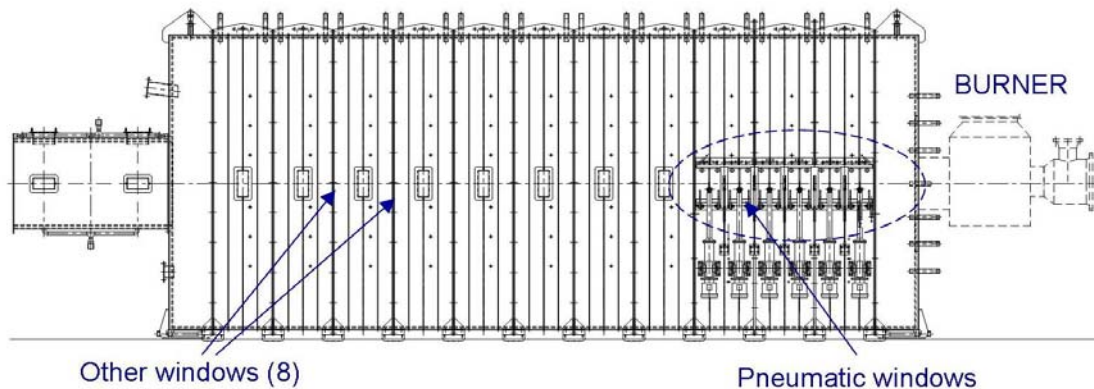


Figure 1 Schematic of the furnace FOSPER



Figure 2 External view of FOSPER

Characteristics:

- Max thermal load: 5MW_{th}
- Internal square cross-section: 2 x 2 m
- Length: 6.38 m
- Residence time: 2.55 s at the nominal load
- Fuels: solid fuels (coal, secondary fuels), oil and gas

The furnace is constructed of 11 independently water-cooled refractory-lined sections. Along the side of the furnace there are 14 windows to insert measurements probes.

Available measurements:

The chemical composition and the temperature of the flue gases are constantly monitored as well as all the flows and the temperature of input airs and fuel.

Through the observation windows is possible to do many kind of measurements inside the furnace with the IFRF probes:

- chemical composition and temperature profiles
- radiation measurements
- gas velocity field
- fly ash iso-kinetic sampling