



Gaswärme-Institut e.V.
Essen

Test Rigs at GW I

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R&D Combustion Technology Section

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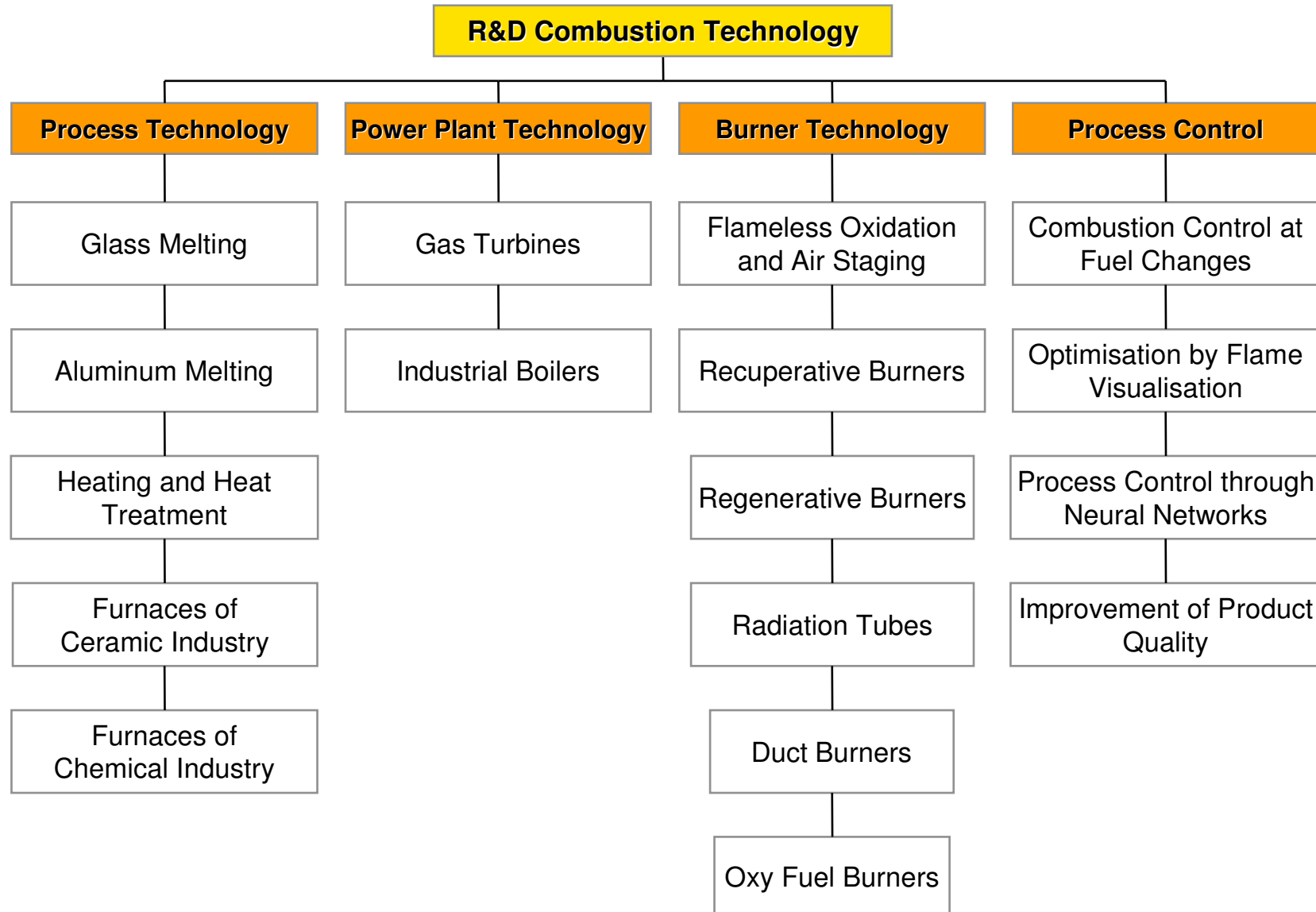
General Info

- Non-profit organisation
- founded by German gas companies in 1937
- 69 members (gas distributors, local gas suppliers, house heating producers, associations, etc.)
- 50 employees
- <http://www.gwi-essen.de>



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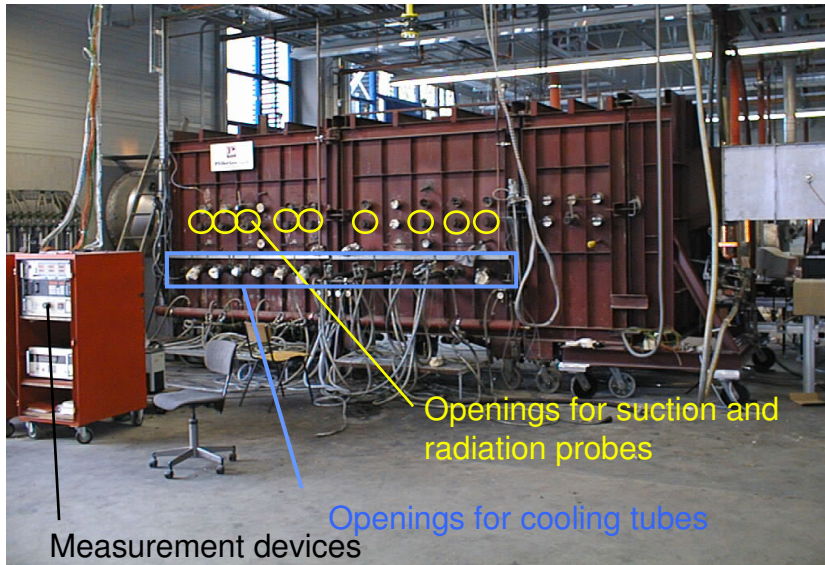
Fields of Activity



- Test rig 1 (1.5 MW high temperature test rig)
- Test rig 2 (300 kW test rig)
- Water cooled flame tube
- Black body calibration furnace

- Gas pre-heater (400 °C)
- 160 kW electrical air pre-heater (1000 °C)
- 300 kW gas heated air pre-heater (600 °C)
- 1.8 MW gas heated air pre-heater (1350 °C)

Test Rig 1 (1.5 MW High Temperature Test Rig)



Features

Max. furnace temp.: >1800 °C
Max. wall temp.: 1600 °C
Max. load: 1.5 MW

Geometry L x W x H: 5.0 m x 1.0 m x 1.2 m

Fuel:

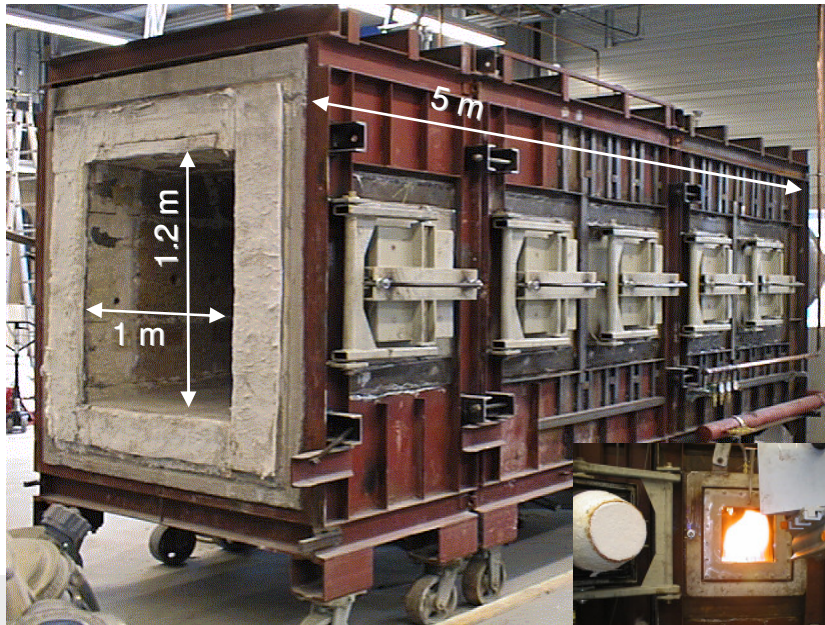
- natural gas
- other gas mixtures

Oxidator :

- air
- pre-heated air (up to 1350 °C)
- oxygen
- O₂ enriched air

6 cooling tubes
13 openings Ø 60 mm,
5 observation windows Ø 250 mm

Several types of front wall can be used

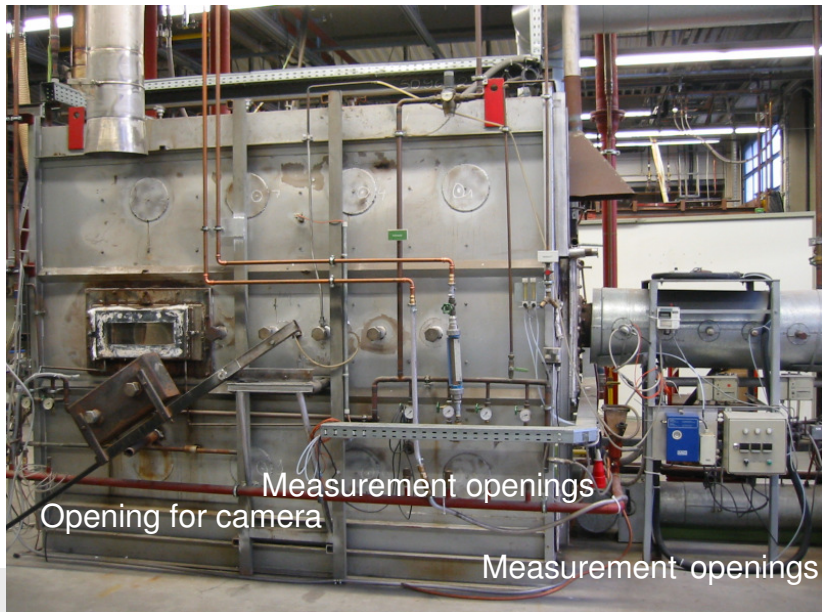
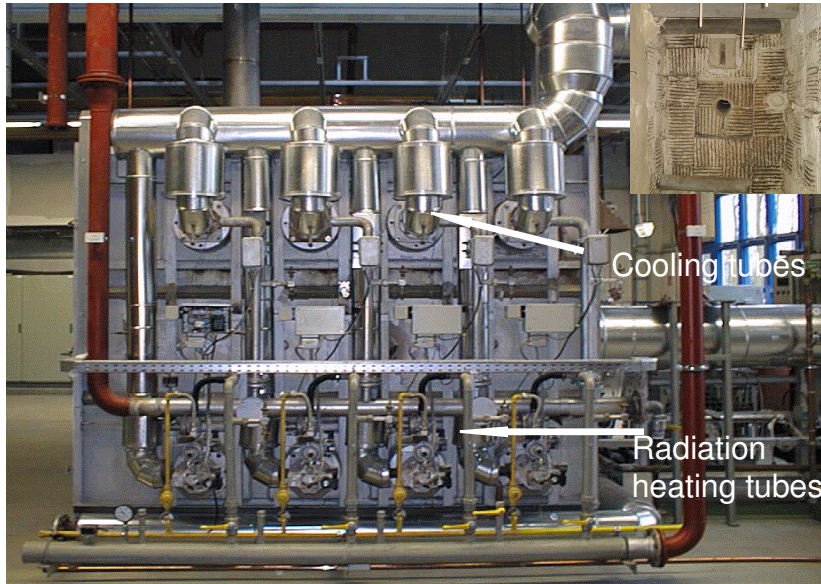


Test Rig 1 with EcoReg



1.8 MW air pre-heater (1350 °C)

Test Rig 2 (300 kW Test Rig)



Eigenschaften:

Max. Temp. : 1300 °C
Max. Load: 300 kW (fuel gas)

Geometry: Width: 1.2 m
Height: 1.8 m
Length: 2.7 m

Heating System: 4 Radiation tubes

Cooling System: 4 Cooling tubes (with air)

Fuel:

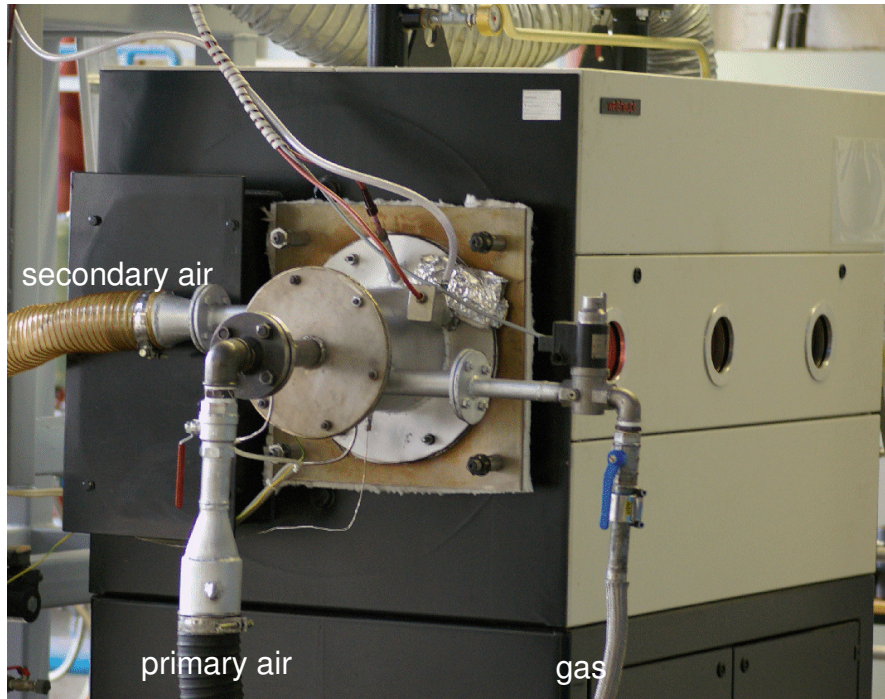
- natural gas
- other gas mixtures

Oxidator:

- air
- pre-heated air (up to 1000 °C),
- oxygen
- with O₂ enriched air

6 openings Ø 60 mm,
7 openings in exhaust gas Ø 25 mm
1 observation window 200 x 600 mm

Water Cooled Flame Tube



Features:

Load: 100-300 kW

Geometry : \varnothing 400 mm
Length: 2.7 m

Water parameter:
2 Nm³/h at
85 °C pre-heat temperature

Fuel: - natural gas
- other gas mixtures

Oxidator: - air
- oxygen
- O₂ enriched air

4 observation windows \varnothing 110 mm

Black Body Calibration Furnace



Features:

Max. Temperature: 1500 °C

Opening: Ø 60 mm

Heating system : electrical



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Thanks

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