



# Hydrogen Plant Support Services, from the Global Leader in Hydrogen Production

Put Air Products hydrogen expertise to work for you

# Air Products can add value throughout your hydrogen plant

## Put our hydrogen expertise to work for you.

### Convection section

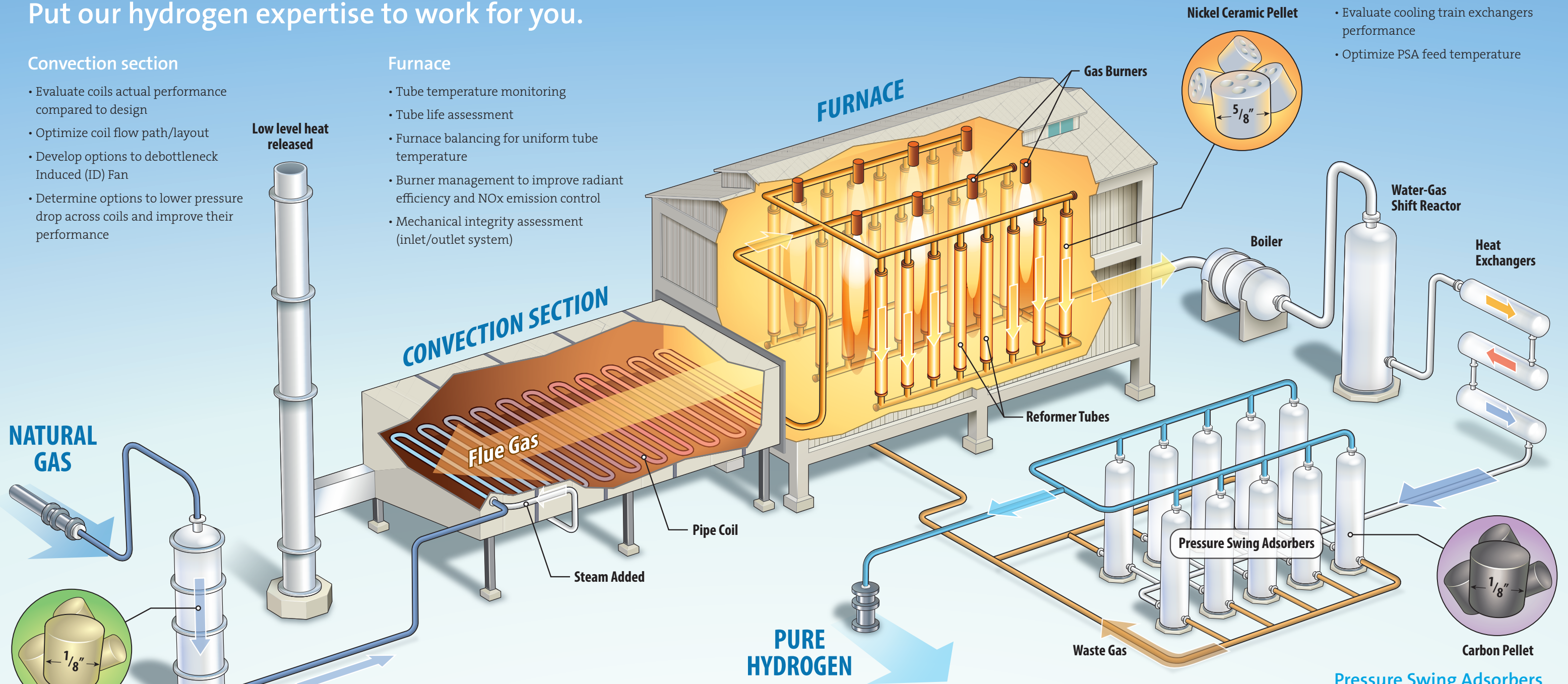
- Evaluate coils actual performance compared to design
- Optimize coil flow path/layout
- Develop options to debottleneck Induced (ID) Fan
- Determine options to lower pressure drop across coils and improve their performance

### Furnace

- Tube temperature monitoring
- Tube life assessment
- Furnace balancing for uniform tube temperature
- Burner management to improve radiant efficiency and NOx emission control
- Mechanical integrity assessment (inlet/outlet system)

### Syngas Cooling Train

- Optimize shift reactors
- Evaluate cooling train exchangers performance
- Optimize PSA feed temperature



Zinc Oxide Pellet

Sulfur Removal Vessel

### Feedstock purification

- Optimize to process a wide variety of SMR feeds (e.g. refinery off-gas, refinery fuel gas, heavy hydrocarbons, liquid feeds, LPG, butane)
- Feed gas impurities testing (e.g. sulfur, chlorides, mercaptans)

### Overall Hydrogen Plant Services

- Reliability and productivity plant assessments
- Complete plant performance test at maximum and minimum production rates
- Fouling and corrosion assessment
- Plant compression system evaluation
- Emergency services/troubleshooting
- Safety audits
- Preventative maintenance programs

No other industrial gas company produces as much hydrogen as Air Products.

### Pressure Swing Adsorbers (PSAs)

- Capacity and recovery optimization (cycle time, control system assessment)
- Purge gas composition/flow optimization to reduce oxygen swings in reformer furnace
- Adsorbent degradation assessment
- On-site adsorbent replacement/upgrade Advisory Services



## Why call Air Products?

- Air Products is the world's leading third party provider of hydrogen.
- We operate over 100 hydrogen plants and have extensive operating experience, over 1500 years.

Chances are, we've experienced and solved the same problems you are having at your plant.

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For more information,  
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