

FRNC-5PC

Fired Heater Simulation Software

PFR | *Engineering Systems*

PFR ENGINEERING
FRNC-5PC
Simulation Program



FRNC-5PC is the world's foremost computer program for fired heater analysis and design. It is used in over 15 countries on 6 continents by leading petroleum refining, engineering and construction, and petrochemical firms.

FRNC-5PC combines a process flow simulator with a comprehensive heat transfer and pressure drop calculator using field-tested, state-of-the-art engineering methods.

FRNC-5PC provides value that has been proven for over 35 years. It is continually upgraded to reflect new technology, field experience, and user-requested enhancements.

✔ Reduce Operating Costs

- Lower fuel consumption by fine-tuning fired heater parameters
- Evaluate air leakage effects, air pre-heaters and heat recovery coils.

✔ Increase Capacity

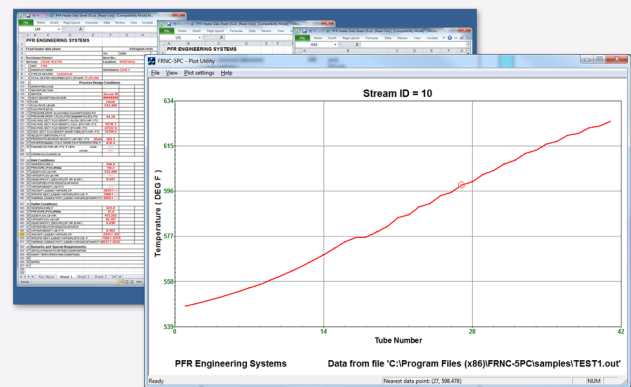
- Identify thermal, hydraulic and draft limits
- Model process controls
- Minimize excess air for NOx control

✔ Minimize Unplanned Shutdowns

- Provide detailed tube-skin temperature and tube-wall thickness profiles
- Evaluate fouling and coking effects
- Train engineers to troubleshoot heaters

✔ Output Features

- Stream Property Grid
- Process-stream Summary
- Tube-side Performance of Each Process Coil
- Warning and Error Messages
- Fuel and Flue Gas Side Data
- Tube-wall Temperatures and Heat Fluxes



✔ Check New Heater Designs

- Optimize capital expenditures
- Determine firebox and overall heater efficiencies
- Evaluate most boiler types

✔ Evaluate Process Changes

- Stream rates, temperature and compositions
- Steam injection
- Process-stream flow regimes and vaporization
- HAZOPS and Process Safety Management reviews

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User-friendly Input System

The system contains graphic input screens and on-line help functions with automatic default values for the most common heater configurations.

The software contains an automatic stream property generator for common chemical compounds and typical petroleum fractions. FRNC-5PC optionally employs user-supplied stream property profiles. The program features international and US/English unit systems for input and output.

FRNC-5PC simulates most heater types and sections, coil configurations, tube and fin types, and inlet and outlet transfer lines.

- Crude & Vacuum Heaters
- Fired Reboilers & Superheaters
- Desulfurizer Preheaters
- Coking/Visbreaking Furnaces
- Waste Heat/Steam Generators
- Lube Distillate & Wax Heaters
- Furfural Heaters
- Platformer/Rheniformer Heaters
- Charge and Feed Heaters
- Oil Patch Steam Generators
- CO Boilers

FRNC-5PC analyzes heat recovery sections of Pyrolysis and Steam Reforming Furnaces and gas turbines.

PFR Engineering Systems, producer of the world-renowned Fired Heater simulation programs FRNC-5PC and REFORM-3PC.

PFR's software is used in the Petroleum, Petrochemical and Power industries around the world to evaluate thermal equipment such as fired heaters, boilers, heat exchangers and heat recovery systems.

Our programs are used by engineers in refineries and chemical plants, engineering companies and thermal equipment manufacturers.

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