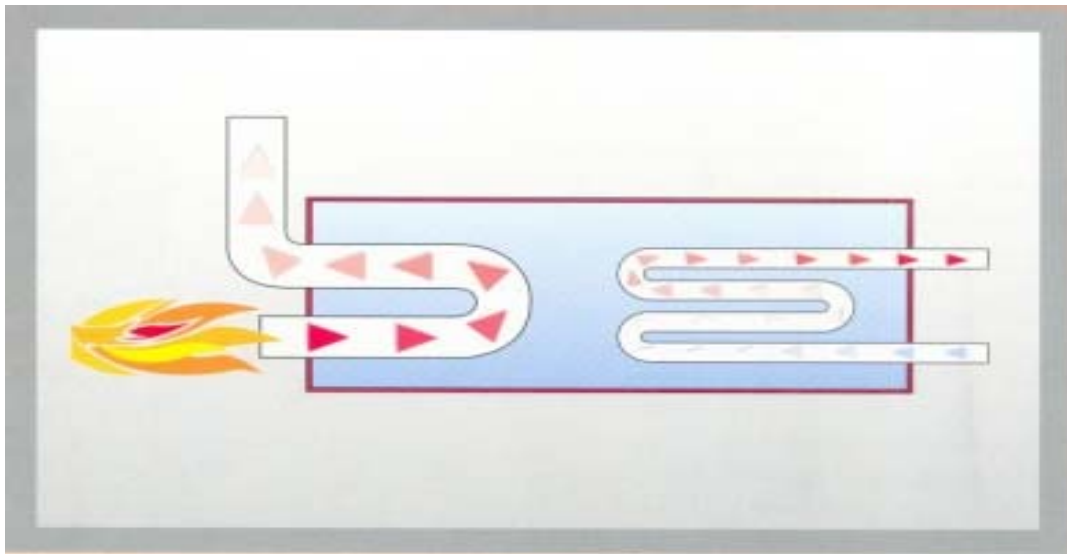


## INDIRECT FIRED HEATERS

NAPEEC's (Noandishan Arya Process and Energy Engineering Company) Indirect Heater uses the latest technology for combustion and heat transfer. Our engineers design each unit and use a combination of components selected from a range of specialist manufacturers to achieve a performance which is difficult to match.



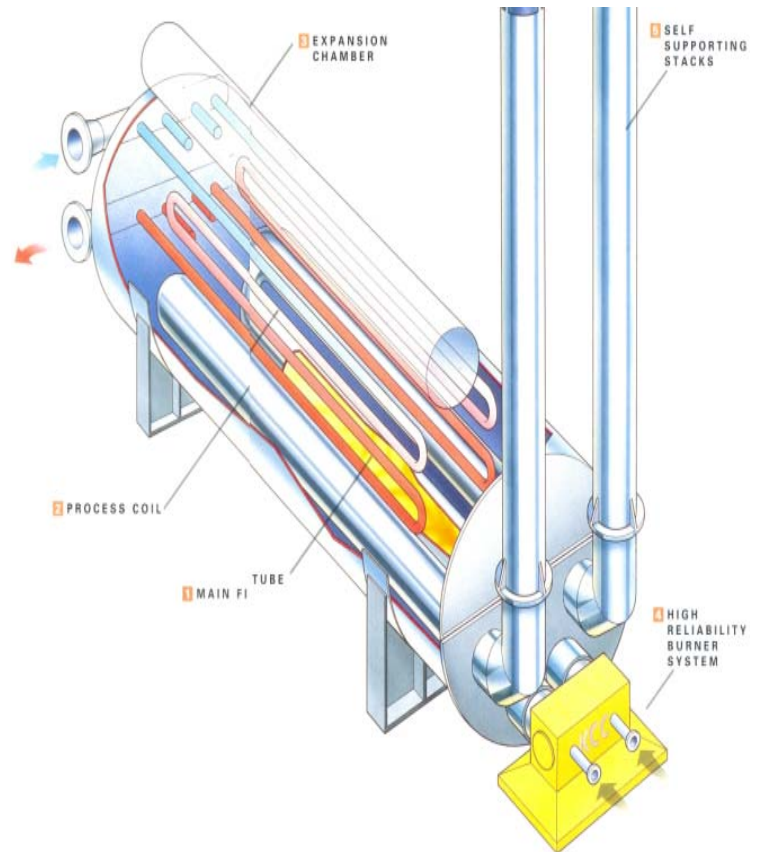
### **OPTIONS:**

NAPEEC offer a number of optional style and ancillary component for our range of indirect heaters:

- Bath fluid may be water, water/ glycol or special heat transfer fluids for higher temperatures
- Fire tube may be "U" tube or multi return type and may be manufacture from special material.
- Forced or natural draft burner systems available, using single or dual fuels
- Fully automatic ignition, monitoring and control system
- May be skid mounted for ease of installation

## How it works:

Fuel gas burned inside a horizontal fire tube **1** located in the lower part of the heater shell. Heat is transmitted from the flame and fuel gas by radiation, Convection and conduction to the fire tube wall and from there into the bath fluid. Convection currents transfer the heat from the bulk bath liquid to a coil **2** containing the process fluid which is located above the fire tube. The use of suitable heat transfer fluid (water, water/glycol or special heat transfer fluid such as mineral oil) ensures an even heat transfer through the two metal heat exchangers-the fire tube and the coil and provides a safe and efficient means of heating with minimal surface fouling.



## Design features

Standard design features of NAPEEC'S indirect fire heaters include:

- Fuel gas preheat coil to ensure dry fuel gas supply to the burner
- Easy removable fire tubes and process coil
- Stack removable to meet strict environmental dispersion limits
- Expansion chamber **3** for bath fluid also minimizes evaporation losses and can incorporate an emergency vent
- High integrity fuel gas controls and shut down systems

## Performance

The NAPPEC Indirect Heater can be expected to achieve the following performance when correctly installed and operating:

- Achieves a net thermal efficiency of 85% (high efficiency design)
- Coil pressure drop of less than 10 psi (0.7 bar) is typical
- Stable turndown to less than 10% of design flow



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