

# INDIRECT WATER BATH HEATER

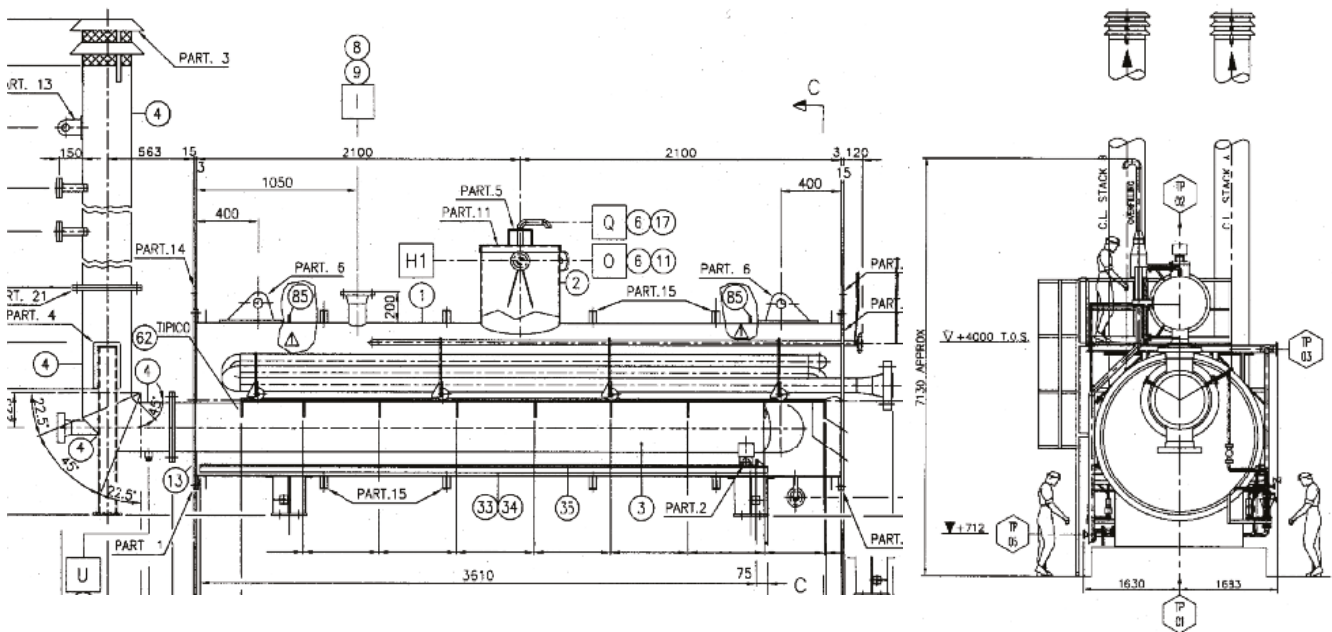


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# General Description/Principle of Operation

The REPCo's Indirect Water Bath Heater comprises a system of burner heated fire tubes and a manifold coil containing the fluid to be heated all immersed in a common bath of water. The Water Bath Heater is used to transfer heat to a oil or gas stream. This is why they are referred to as "indirect heaters" (oil field terminology) because a medium (normally water or a water glycol mix) is used to transmit heat generated by the burner and received by gas. Most heaters are designed in accordance with API 12K and feature an expansion tank for ease of operation.

**The main principle of operation of the REPCo's Indirect Bath Heater is efficient heat transfer so the high pressure fluid is introduced to the heater through a choke, located on the inlet of the coil, causing an expansion to take place immediately inside the manifold, inside the water bath, the fluid flows through the steel coils where its temperature is raised to that required by one of the applications listed below.**



## Application

Water Bath Heaters are useful in many different applications and scenarios. REPCo's indirect bath heater has been applied to many different operations. See below for some examples, but not limited to:

### Power Generation

- ➔ Gas Turbine Wobbe Index control.
- ➔ Gas Turbine Dew Point margins.

### Crude Oil & Natural Gas

- ➔ Heating high pressure gas and/or oil in oilfield production.
- ➔ Heating high pressure gas from well-heads and main gas distribution stations prior to pressure reduction to prevent hydrate formation.
- ➔ Heating natural gas at city gate stations from main gas pipeline.
- ➔ Heating oil producing well streams.
- ➔ Heating highly viscous oil to reduce pumping pressure and boost pumping efficiency.
- ➔ Heating light hydrocarbon liquids to superheated state for alternate or standby fuel sources.

## Product Features

Most heaters are designed in accordance with API 12K and feature an expansion tank for ease of operation.

- Efficient Heat Transfer so that the high-pressure fluid is introduced to the heater through a choke.
  - The choke is located on the inlet of the coil, causing an expansion to take place immediately inside the manifold, (inside the water bath).
  - The fluid flows through the steel coils where its temperature is raised to that required by the necessary application.

## Instructions

The following instructions are valid for all REPCo's Indirect Water Bath Heaters.

### A) Installation

- Turn off any electrical power, disconnect from combustible source and purge system of any combustibles before attempting to clean, service, or repair unit.

### PRE-BURNER IGNITION

- Close manual shut-off valve to main burner.
- Close manual fuel shut-off valve to pilot burner.
- Check for adequate liquid level above fire tube and temperature sensing elements. View liquid level at gauge glass, or at fill hatch opening; or by verifying flow through unit.
- Check for and stop any leaks on vessel, piping, and fuel gas instrumentation.
- Wait at least five minutes for combustibles to purge from system after shutting off fuel valves. Be sure all areas is clear of combustibles before lighting burner.
- Adjust fuel gas pressure.

### BURNER IGNITION

- Have a suitable ignition torch long enough to reach pilot burner from pilot access opening. Insert ignition torch next to pilot burner.
- Stand to one side of burner. Do not stand directly in front of burner. Open pilot light fuel valve.
- Remove torch while standing at one side of burner. Verify the pilot is lit after removing torch. If pilot is not lit, repeat start-up procedure.
- Stand to one side of the burner. Open main valve slowly.
- Flame should be centred in fire tube, not to one side. Regulate burner for continuous firing when possible.

### B) Preventative maintenance

Preventative maintenance is to be performed as follows:

- After start-up and with heater at operating temperature, check firebox flange bolts for tightness, inspect for any leaks in piping or fuel gas system.
- Inspect burner and pilot light periodically to ensure it is kept clean from soot or other foreign matter.
- Pull and inspect fire tube periodically. Keep free of scale and other solids accumulation.

NOTE 1: For operation and maintenance services please refer to the dedicated REPCo Water Bath Heater operating and maintenance manual.





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