INDIRECT HEATERS
Indirect bath heaters have a wide variety of successful applications in the oil and gas production, processing and transmission industry.

Some of the most common application include the following:

1. Gas dew Point Heating: high-pressure natural gas heating upstream pressure regulation stations preventing condensation phenomena due to the Joule-Thomson effect.
2. Heating of high-pressure natural gas upstream pressure regulation in order to prevent external icing formation.
6. Viscosity reduction: Crude Oil Heating upstream treatments to facilitate degassing and dewatering.

Range:
The duty of SITES S.r.l. heaters can vary from 90kW up to 10 MW.
Indirect bath heaters are composed of the following main parts:

- Main body
- Coil or tube bundle
- Water expansion tank
- Fuel feed line
- Burner (gas type, oil type or bi-fuel)
- The fire-tube
- Chimney
- Burner management system panel
- Skid frame and service platform
- Insulation

The heater shell contains the fire-tube that allows a rapid heat transfer (both radiant and convective) from the flame to the hot medium. The heat is transferred from the bath to the coil / tube bundle and then safety to the gas or the oil.

The expansion tank allow the hot medium to be contained for the thermal expansion due to the temperature increase.

Level gauges and transmitters advise when additional water or hot medium is required and give alarms in case of overfilling.
EXTERNAL INSULATION

Heaters are thermally insulated, except end sides left bare to facilitate access to the coils, burner or stack. Insulation materials are properly selected based on operating temperature and climate conditions.

FORCED DRAFT VS NATURAL DRAFT

Forced or natural draft heater designs are available depending on working conditions and power availability on site.

Natural draft burner relies on a stack to create negative pressure at the burner inlet, which induces as much air as is required for combustion. These heaters are popular for remote locations and/or locations with limited or even no power supply available.

Forced draft heaters are ideal whenever there is a low emission requirement, utilizing small bore fire tube reduce the “dead gas film” region along the tube walls. This results in a reduced tube areas compared to theri large bore counterparts, therefore, overall heater size is minimized creating a significantly smaller footprint while offering superior burner control compared to natural draft style heaters.
WATER BATH HEATERS

Heaters are designed to customer specification and design conditions, they can have different configuration:

**GAS PIPE INSIDE THE HEATER:** Tube bundle or coil

**AIR DRAFTS:** Natural circulation or forced flow

**BURNERS:** Mono-fuel or bi-fuel

**HEAT SOURCE:** Natural gas, oil or electricity

**HOT MEDIUM:** De-mineralized Water, Glycol, Hot Oil, Thermal B.

The operation of the gas heaters is completely automatic. Gas heaters are fired with natural gas which will be supplied to the burner at a specific pressure thanks to a dedicated fuel gas pressure regulators complete of all the required safety devices and electrical heating on a dedicated line.
HOT OIL HEATERS

Used in order to reduce the viscosity to ease the oil stream transportation. The hot medium can be water, hot oil, Glycol or Thermal B.

Almost every coil bundle require a tailored design in order to meet requirements of heat duty, working pressure, corrosion allowance, sour gas service, NACE MR-01-075 and governing specification or standard, usually ASTM or ANSI B 31.3.
All the previous type of heater can be constructed with Electrical heating source.

Gas Heating prevents condensate creation after the gas temperatura reducing at the pressure reducing valves for the joule-Thompson effect.

On Electrical Heaters the temperature control is operated by a Thyristor system. SITES can offer a full range of flameproof heaters, immerion heaters, process flow heaters and electric heating skids for a variety of applications.

Typical electric process heating applications include fuel gas heaters, fuel oil heaters, glycol reboilers, TEG heaters, MEG heaters and water heaters.