INDIRECT HEATERS

DESIGN PHILOSOPHY

Indirect bath heaters have a wide variety of successful applications in the oil and gas production, processing and trasmission 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.
3. Fuel Gas super-heating upstream gas turbines (Performance Heaters) .
4. Gas Heating downstream low temperature storages.
5. Hydrate prevention.
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.

MAIN FEATURES

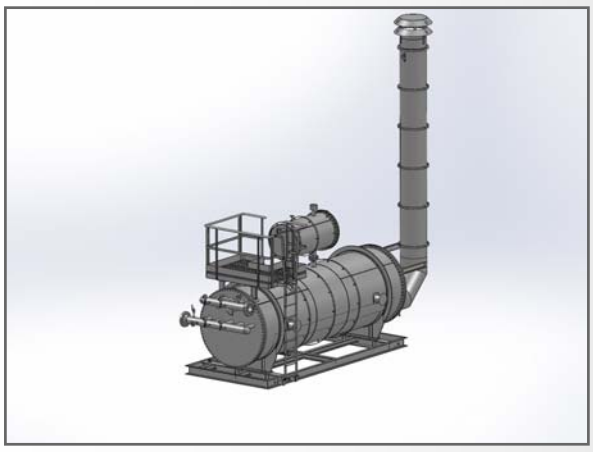
Indirect bath heaters are composed of the following main parts:

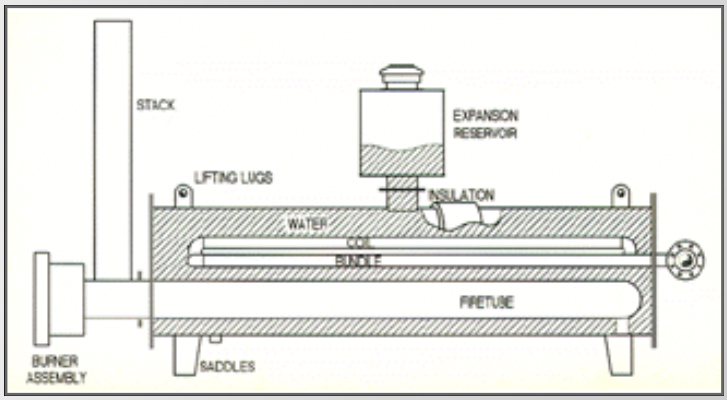
- Main body
- Coil or tube bundle
- Water expansion tank
- Fuel feed line
- Burner (gas type, oil type or bi-fuel)
- The fire-tube
- Chimney
- Burner management system panel
- Skid frame and service platform
- Insulation

The heater shell contains the fire-tube that allows a rapid heat transfer (both radiant and convective) from the flame to the lhot medium. The heat is transferred form 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,
	Gllycol, 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 everi 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.

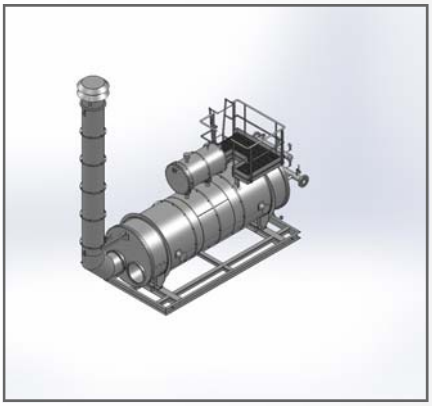
ELECTRICAL HEATERS

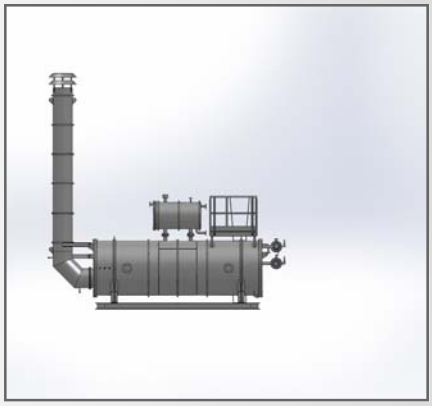
All the previous type of heater can be constructed with Electrical heating source.

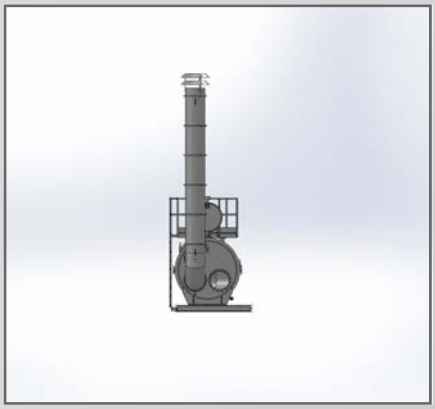
Gas Heating prevents condensate creation after the gas temperatura reducing at the pressure reducing valves for the joule-Thompson effect.

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.







Lloyd's Register
LRQA

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

SITES S.r.l.
Via Trento, 82
22070 Fenegrò (Como) – Italia

has been approved by Lloyd's Register Quality Assurance
to the following Quality Management System Standards:

ISO 9001:2008

The Quality Management System is applicable to:

Engineering, manufacturing, assembly and assistance of gas, air, oil and gas treatment plants for petrochemical and energy companies.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval Certificate
No: LRC 6009580/QMS/U/EN

Original Approval: 2nd June 2010
Current Certificate: 14th June 2016
Certificate Expiry: 14th September 2018

Issued by: Lloyd's Register Quality Assurance Italy Srl
for and on behalf of Lloyd's Register Quality Assurance Limited

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This document is subject to the provision below
Via Cadorna, 69 20090 Vimodrone (MI)
For and on behalf of 1 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES, - United Kingdom.
This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA
The use of the UKAS Accreditation Mark indicates Accreditation in respect of those activities covered by the Accreditation Certificate Number 001

Lloyd's Register
LRQA

CERTIFICATE SCHEDULE

SITES S.r.l.
Via Trento, 82
22070 Fenegrò (Como) – Italia

Locations	Activities
Via Trento, 82 22070 Fenegrò (Como) – Italia	Engineering, project management, manufacturing and assembly and assistance of electrical panels, control and power panels for petrochemical and energy companies. Prefabrication of steel structures.
Via Milano, 74 b 22070 Bregnano (Como) - Italia	Engineering, project management, manufacturing and assembly of gas, air, oil and gas equipment for petrochemical and energy companies. Technical assistance activities.

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