KALFRISA
ENERGÍA Y MEDIO AMBIENTE

INDUSTRIAL AIR HEATERS

FIRED HEATERS

The preheating system consists of a furnace or combustion chamber, heat exchanger (tube cage or tubular heat exchanger), combustion air, fan and flue.

In addition to maintaining catalytic beds above their self-ignition temperature, the system also allows flexibility at the plant as it can deal both with different variations in SO2 concentrations and flows, and also carry out much quicker firing.

SOLUTIONS

- Design and manufacture of new units to customer requirements.
- Repair of damaged preheater components or overhaul of older units to enhance performance.
- Assessment and improvements to provide integrated solutions to suit customer requirements.

KEY POINTS

Design, manufacture and inspections performed at our facilities in Zaragoza.

Possible modular design of casing, refractory material and piping system.

Pressure recuperator design according to AD-2000-Merkblatt code.

All flanges and counter-flanges according to ASME code.

Total availability for on-site supervision.

Predictive maintenance by remote control by our work teams.

24 h remote assistance

AIR HEATERS

Kalfrisa's industrial air heaters are manufactured for use in different industrial processes. Depending on each specific process and operating conditions we offer bespoke, reliable, efficient solutions to match our customer's end needs.

Our air heater units are classed according to the temperature jump / exchange power that is to be obtained. For this reason, we differentiate, from higher to lower heating power, between Modular Heaters, Fired Heaters, VKs, VQs and VTs.

APPLICATIONS

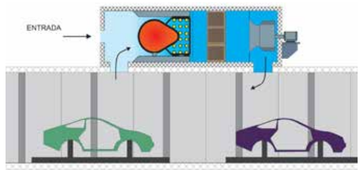
Sulfuric acid: Fired heaters and special modular heaters.

Food dryers for fish, cocoa, coffee, dried milk, tobacco, salt, pistachios, fruit ...(VT, VQ, VK, Modular)

Car (VT)

Textile (VT, VQ)

8.5 MW heater installed in a sulfuric acid plant in Namibia.



VT air heating module installed in a paint booth for the car industrial.

VT's

The VT series of air heaters is highly versatile in terms of sizes and models, which allows them to adapt to a large number of industrial facilities.

FIELD OF APPLICATION

Air heating for drying facilities in industries such as food, textiles, minerals, ceramics, wood, automotive and auxiliary industries as well as metal and plastic surface treatment plants.

ADVANTAGES

Very compact units, great durability, reliability, wide range of air flows, relatively low consumption, low production cost ...

COMPACT VT HEATER

RELIABILITY

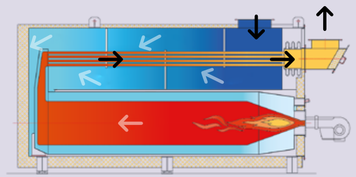
EFFICIENCY

VK's & VQ's

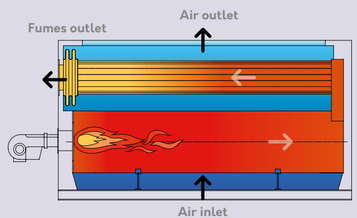
VK heaters are compact units that offer the greatest temperature jump. Their power range is similar to that of the VQs, almost 1,500 kW. Both consist of a combustion chamber and a tube heat exchanger (several passes in the VK unit or one pass in the VQ), enclosed in stainless steel casing for food industry applications. Manufactured as one piece for easy installation at plant, transport, and handling.

They can be made totally in stainless steel to meet food industry requirements. They are robust units that withstand thermal expansion well, due to the use of compensators and that can be operated with different types of fuels.

VK heater



VQ Heater



APPLICATIONS

They are generally used to heat air with high power for drying processes (milk, cocoa, salt, atomization towers, mining industry...)

	Δ°C	Useful power (kW)	Working preassure (mmCA)	Work flows (Nm3/ h)	Temperature Air output (°C)
VT's	70	30-1400	200	2500-96000	300
VQ's	250	30-1400	1000	1000-30000	400
VK's	450	<1500	<2000	5000-40000	450

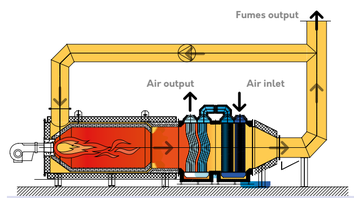
MODULAR/SPECIAL HEATERS

These units are particularly recommended for working conditions (heating power, temperature increase, working pressure, etc..) that exceed the limits for standard or semi-standard compact units.

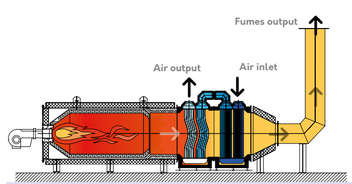
They are large installations which can include recirculation of gases, and which take up a large amount of space. These are tailored solutions designed to customer specifications and can be installed with different layouts: linear, elbow or U-shaped.

CHARACTERISTICS

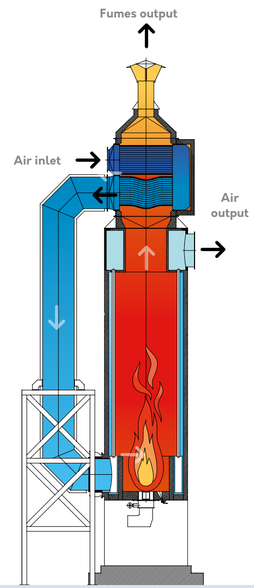
- Heating temperatures: 700°C.
- Accepted flow rates: Wide range to be specified with end customer.
- Transportation in individual pieces for easy assembly.
- Process efficiencies greater than 85%.
- Great Heating Power.
- System with very low emissions, with the possibility of flue gas recirculation to attain levels of 25 ppm.



Modular system consisting of mixer + flue gas recirculation + process gas heat exchanger.



Modular system consisting of combustion chamber + process gas heat exchanger.



Modular system consisting of radiation chamber + combustion air pre-heating.

KALFRISA

360°

EXPERIENCE
KNOWLEDGE
IMPLICATION

PYME INNOVADORA

AENOR ER Registered Company ISO 9001 ER-0488/2016

The knowledge and expertise we have acquired over more than 50 years of experience working with energy and environment techniques at industrial plants means that we offer our customers reliable, cost-effective solutions.

Our equipment is approved, authorised and certified to EC standards. Furthermore, for its ongoing commitment to innovation Kalfrisa has received the INNOVATIVE SME award from the Spanish Ministry of Science and Innovation.

Providing a 360° service is the key to competing for European market leadership. KALFRISA has its own proprietary technologies, and it designs, develops, manufactures, commissions and provides technical after-sales service for its equipment. Experience, expertise, and involvement are the three pillars on which we base our activities.

Kalfrisa guarantees an optimal match of its equipment to customers' requirements, adapting its designs to meet the different technical specifications of each project. Kalfrisa's commitment to excellence is underpinned by ISO 9001:2008 quality certification as well as the implementation of a work philosophy based on external and internal quality standards.

GUARANTEE FOR A BETTER PERFORMANCE OF YOUR FACILITIES

- **TECHNICAL ASSISTANCE AND REPAIR**

  Maximum expertise and certified procedures. The professionals who have designed and manufactured your equipment are there to support you, with the guarantee of highly trained, qualified technicians.

  Only original spare parts are used.

  Swift remote response to any incidents.

  Fault/malfunction reporting with rapid diagnosis and on-call telephone service 365 days.

- **PREVENTIVE MAINTENANCE CONTRACT**

  Scheduled en-route visit protocols throughout the whole territory, periodic inspections to ensure functional continuity, check-up visits and priority attention to reports of faults/malfunctions, allowing swift diagnosis.

- **WE ARE CONNECTED**

  Which means we have real-time information on the operation of your facilities which is crucial for preventive measures or for immediate intervention with the assessment and aid of our experts.

INDUSTRIAL ASSEMBLY AND INSTALLATION

Our engineering department analyses the requirements of each Project to tailor and dimension the correct solution exclusively for each individual customer.

We carry out the assembly, installation and other works required to ensure that the machinery is up and running in optimum conditions.

Our team can provide preventive maintenance of facilities and regular servicing to ensure maximum performance.

KALFRISA

Pol. Ind. Malpica, calle D, número 65, 50016, Zaragoza (Spain) | tel. 976 470940 | fax. 976 471 595 | info@kalfrisa.com | www.kalfrisa.com

CA-EN-04-2022