Krantz Clean Air Solutions

Modern thermal exhaust air purification

sustainable and economical

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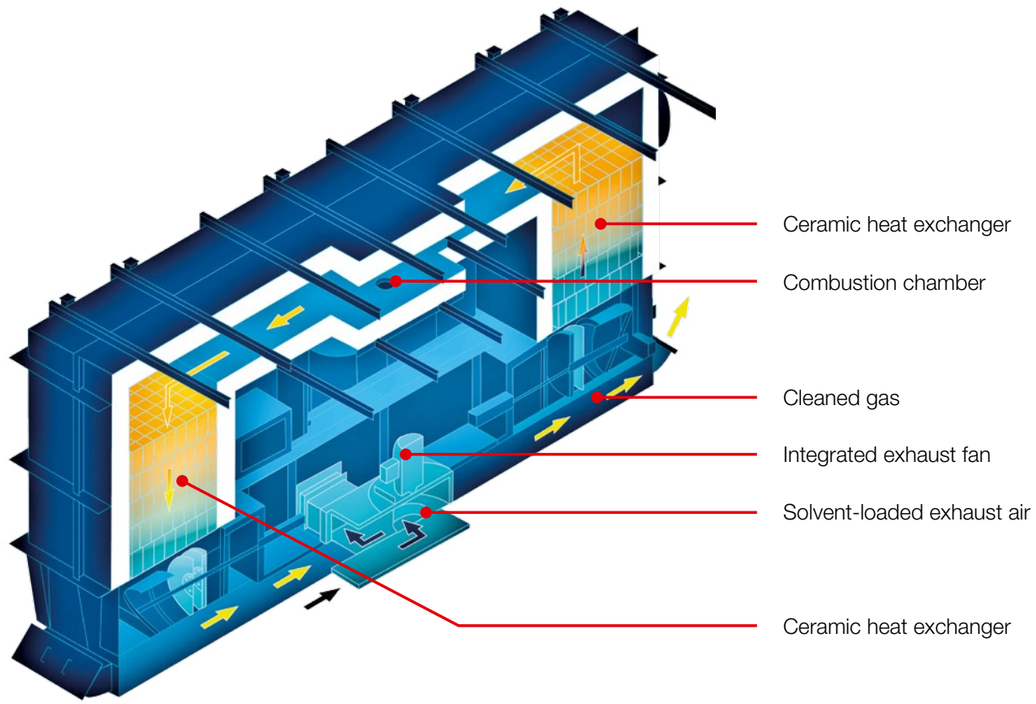
Clean Air Solutions



Modern exhaust air purification using the example of the Krantz SmartRTO

Thanks to the clever combination of an optimised combustion process and internal heat recovery, regenerative thermal oxidation (RTO) is currently the most widespread method of thermal exhaust air purification. Its principle is well illustrated by the example of the new Krantz SmartRTO compact unit.

It has two ceramic heat exchangers. Cold polluted exhaust air is passed through one of the heat exchangers, extracts heat from it and, preheated, can be easily ignited in the combustion chamber. The hot cleaned air is led through the second heat exchanger to the clean air stack. As it passes through the heat exchanger, it heats up the ceramic elements and cools down itself in the process. The temperature level of the heat exchanger is kept constant by regularly changing the flow direction of exhaust air and cleaned air.

The SmartRTO is heated via a natural gas burner. When both heat exchangers reach operating temperature, VOC-loaded exhaust air can be taken over. The natural gas burner can be switched off at low VOC concentrations. The combustion proceeds autothermally.

A success story: reducing VOC emissions

After carbon dioxide (CO2), the most important greenhouse gas, and nitrogen oxides (NOx), which pollute the air and soil as acid formers, volatile organic compounds (VOCs) are the third largest group of air pollutants.

They include hydrocarbon compounds that can be used in a variety of ways and are needed in the pharmaceutical and chemical industries, in printing, surface finishing and in the industrial production of paints, resins, adhesives and plastics.

The reduction of VOC pollution is a success story. Since 1990, VOC emissions in the European Union have fallen by 65%..

Krantz Clean Air economy: High conversion efficiency and energy recovery

Modern exhaust air technology from Krantz Clean Air Solutions delivers cleaning rates of up to 99.9 %. Just as important as maximised cleaning performance is sustainable energy recovery.

VOCs are energy-rich hydrocarbon compounds. In our plants, we use this energy potential to generate process heat, cooling and electrical energy.

Krantz Clean Air concepts: Optimised plant technology for your production

Our high-performance plant concepts can be very simple. For typical areas of application, Krantz plug-and-play technology offers preset, function-tested compact systems that can be delivered as heavy-duty transport and connected to your production technology within one day.

Complex production conditions require more specific concepts. We develop plants that are perfectly matched to the specialised manufacturing processes of our clients.

Krantz Clean Air technology: exhaust air purification for every field of work

Regenerative thermal oxidation

Universal cleaning technology also for large volume flows, 97 % internal heat recovery through ceramic heat exchangers.

Thermal oxidation

For high organic pollutant concentrations, especially from printing, coating, laminating and impregnation processes, volume flows up to 55 thsd. Nm3/h, internal heat recovery through exhaust air preheating up to 76 %.

Catalytic oxidation

For low combustion chamber temperatures and low solvent concentrations in the chemical and pharmaceutical industries, printers, painters, coaters. Volume flows up to 50 thsd. Nm3/h, internal heat utilisation up to 86%.

VOC-fired power generation

Use of concentrated VOC exhaust air as a fuel supplement in a micro gas turbine CHP unit. Autonomous, decentralised energy production of electricity and heat for the energy requirements of industrial plants.

Krantz Clean Air-System: Modular additional units with high efficiency

Concentration unit

Concentration of low VOC loads from large volume flows by Zeolite rotor to increase efficiency of regenerative, thermal or catalytic oxidation and VOC-fired power generation

Heat exchanger

Generation of process heat and cold from hot exhaust air flows

Buffer modules

Optimisation of the cleaning performance of two-chamber RTO plants

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