

# Catalytic Exhaust Air Purification KNV and H-KNV

Catalytic exhaust air purification units have been part of the KBA CleanAir product range for over 40 years. By using heavy-duty catalysts based on mixed oxides or precious metals, it is possible to use catalytic systems in a variety of applications with operating lives in excess of 30 000 hours. The operating temperature is 270 to 320°C (515 to 610°F), which means that the primary energy requirement is much lower compared with a thermal system. The units are used for conventional VOC reduction and special applications such as NO<sub>x</sub> reduction, purification of exhaust air from stationary engines and for carbon monoxide (CO) removal from exhaust air flows.



Sizes designed to handle flow rates up to 9 000 m<sup>3</sup><sub>N</sub>/h are delivered pre-assembled on a base frame (see sectional diagram); larger units are assembled on site.

## Areas of Use

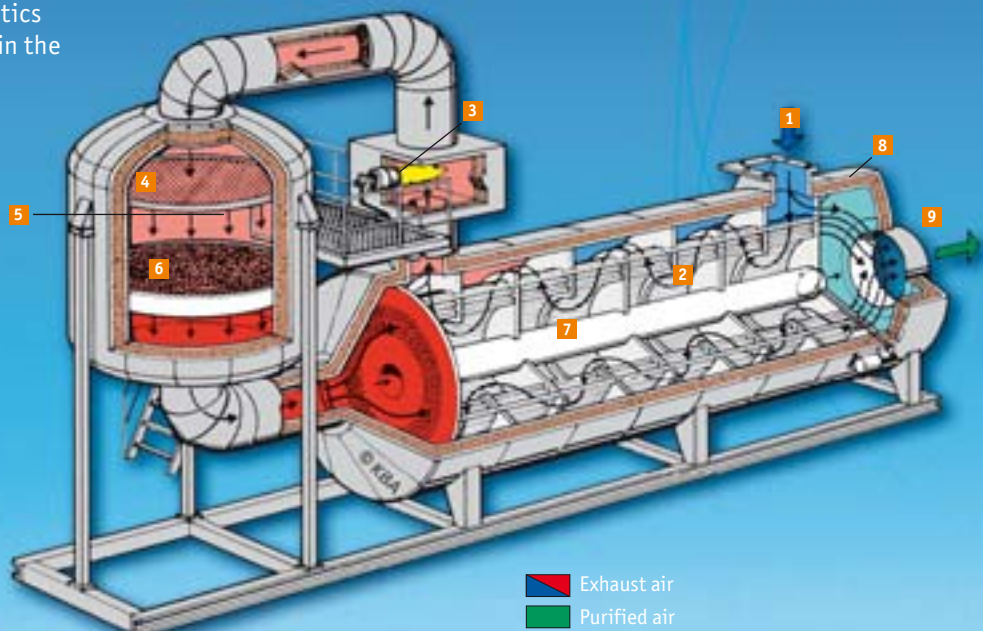
The catalytic process is particularly suitable for widely fluctuating concentrations of solvents and for applications with little need for waste heat. The H-KNV series can be used for high concentrations up to 18 g/m<sup>3</sup><sub>N</sub> (respectively up to 50% LEL) as well as exhaust air streams containing chlorine without the risk of producing dioxin. Other typical areas of application are the plastics industry and odour elimination in the food industry.

## Special Application – Ozone

Industrial ozone emissions, such as those produced by UV dryers or corona systems for increasing adhesion properties have increasingly to be collected and purified. For this reason, the modular catalytic series

OzoneCat has been developed to handle exhaust air flows from 500 to 5 000 m<sup>3</sup><sub>N</sub>/h (300 - 3 000 scfm). It operates at ambient temperature, has virtually no wear parts and is especially suitable for retrofitting to existing installations.

For detailed information, a special brochure is available.



- 1 Exhaust air inlet
- 2 Tubular heat exchanger for internal heat recovery
- 3 Burner
- 4 Air distribution grid
- 5 Inspection opening
- 6 Catalytic oxidation chamber
- 7 Internal bypass
- 8 Outer shell insulation
- 9 Purified air outlet



## Product Line

Individual solutions are based on the following three series:

- Sizes: 500 - 40 000 m<sup>3</sup><sub>N</sub>/h (300 - 24 000 scfm)
- Compact KNV units with plate heat exchanger for exhaust air flow rates from 500 - 8 000 m<sup>3</sup><sub>N</sub>/h (300 - 4 700 scfm)
- Compact KNV units with regenerative rotary heat exchanger for exhaust air flow rates up to 12 000 m<sup>3</sup><sub>N</sub>/h (7 000 scfm) and limited space
- Units with tubular heat exchanger (thermal efficiency 45 - 70%) for exhaust air flow rates from 1 000 - 40 000 m<sup>3</sup><sub>N</sub>/h (600 - 24 000 scfm)
- Special designs with regenerative heat exchangers (thermal efficiency up to 96%) for exhaust air flow rates from 5 000 - 40 000 m<sup>3</sup><sub>N</sub>/h (3 000 - 24 000 scfm)

### Individual designs include:

- Units for solvent concentrations up to 18 g/m<sup>3</sup><sub>N</sub>
- Pellet and honeycomb catalysts in various forms and compositions
- Integrated or downstream heat recovery systems for steam, thermal oil, hot water or clean air heating
- Pre-heating via natural gas, LPG or electrical heat exchangers
- Injection systems for waste solvents
- Mobile and trial units



## Service

When the catalyst has to be replaced, this is carried out quickly and safely by our customer service department. This also includes the special suction device for clean removal and the return and proper disposal of the spent catalyst material.



*A catalytic system type H-KNV 3 000 handling a very high concentration of exhaust air from a coating plant. The unit is heated electrically and has an integrated thermal oil heat exchanger for heating the dryer system.*