

KOENIG & BAUER

Ovens for the  
drum industry –  
Tailor-made installations

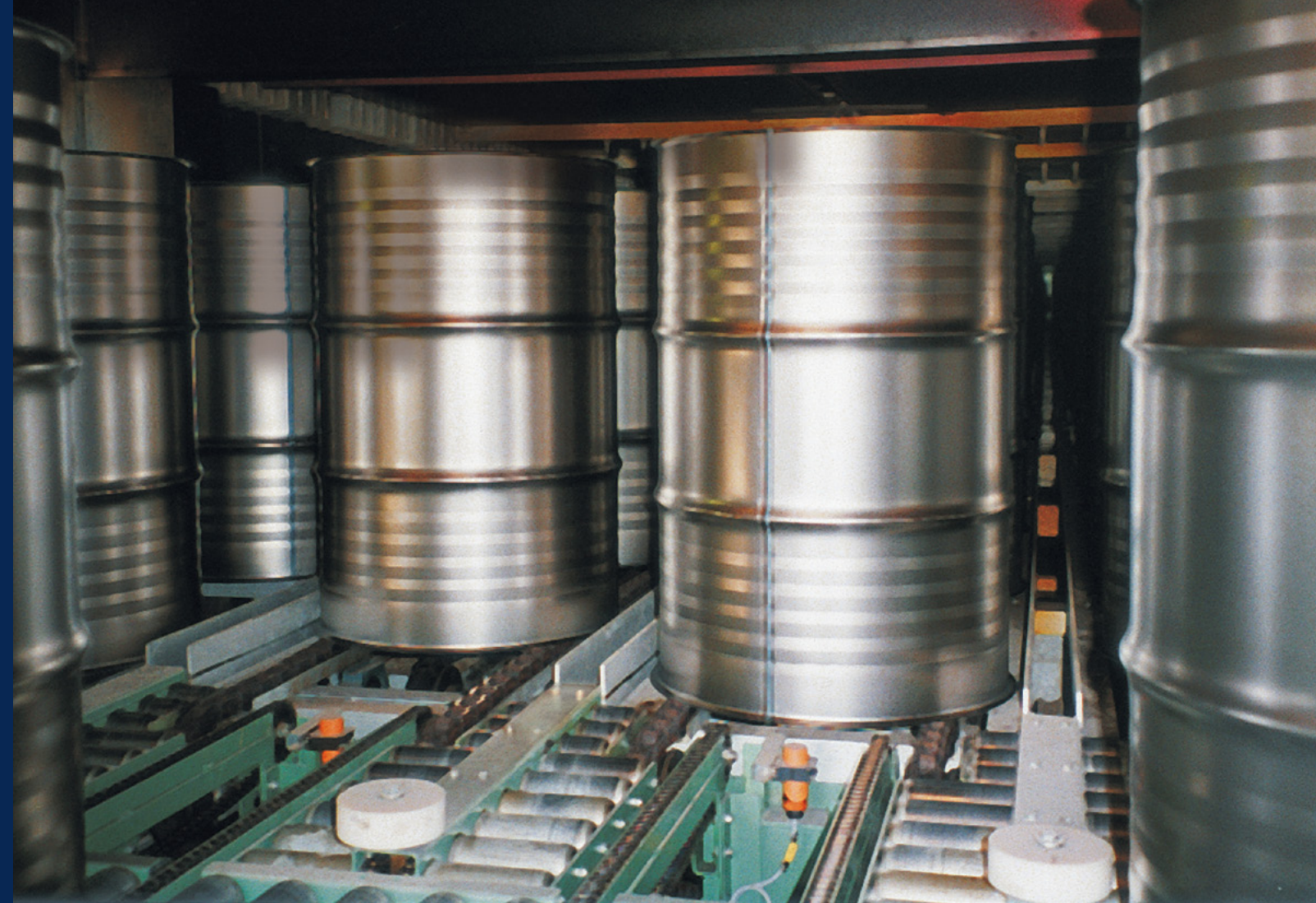


we're on it.



## Drying oven program for the drum industry

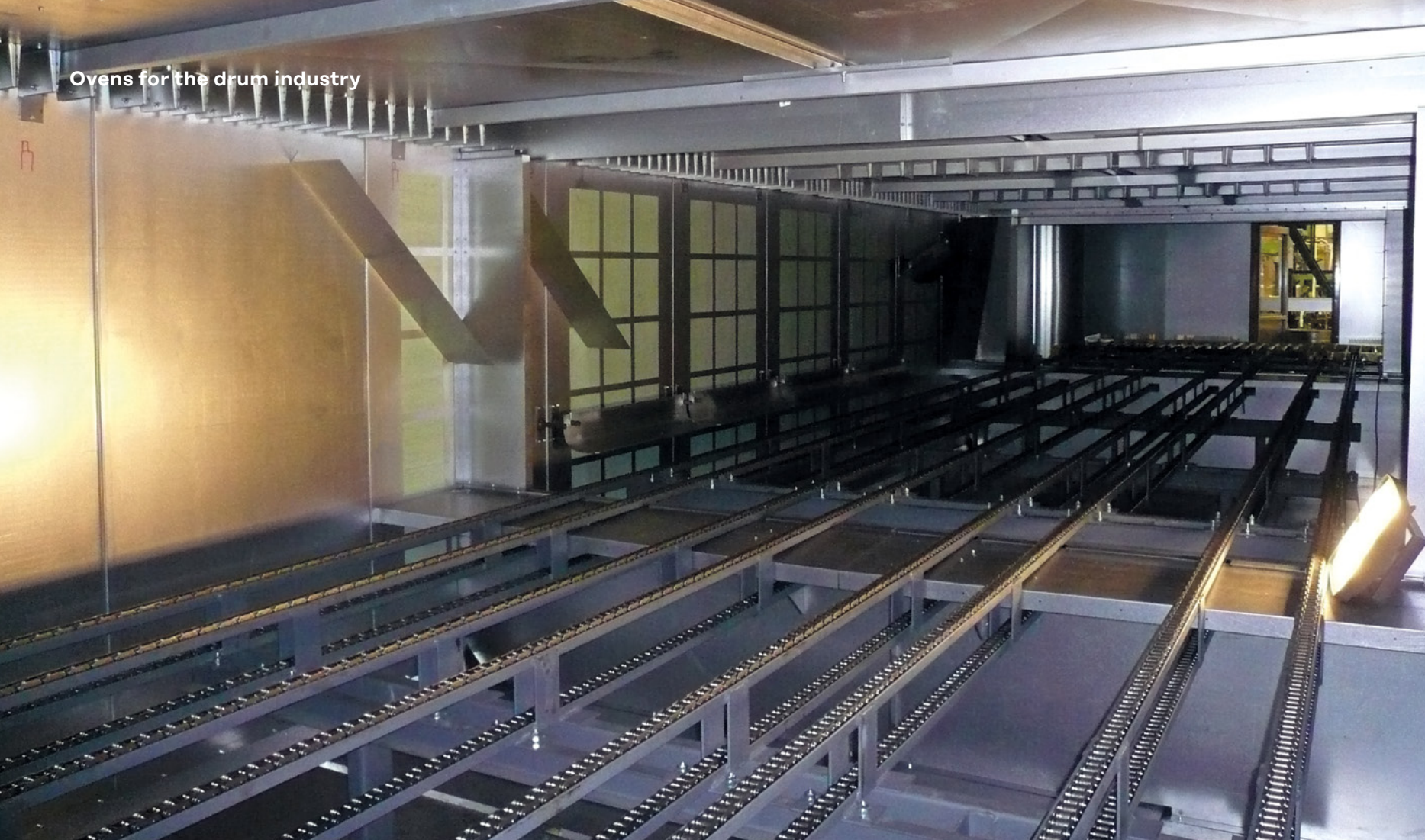
Koenig & Bauer MetalPrint drum dryers are available in a wide choice of versions, all specifically tailored to the needs of our customers.



All drum dryers rely on the proven drying technology which is also used in Koenig & Bauer MetalPrint thermal drying ovens. Regardless of whether an oven is needed as multiple-row, as a double tunnel or as a wicket oven, Koenig & Bauer MetalPrint has the ideal solution.

- Ovens for spray-painted or lined drums, respectively intermediates or pails in 1 to 4 row design
- Double tunnel ovens for curing of inside lined and outside painted drums at the same time
- Wicket ovens, type DBN, for drum sheets
- Wicket ovens for drum ends
- Ovens for drum ends in racks
- Integrated EcoTNV air purification system with flexible main heat-exchanger to clean the exhaust air of oven and corresponding spray booths by using the excess energy for the drying process itself





## Heating system

Depending on customers requirements and available fuel, drum drying ovens can be designed for either direct gas heating, direct oil heating or for heating by hot purified exhaust air from a fume incineration system.

Depending on the size or capacity of the installation, as well as type of paints and lacquers to be used (solvent-based or water-based paints, high bake or low bake lacquers), drum drying ovens can be equipped with one or several heating units. This ensures that the drying of

the drums and/or drum ends at different temperatures in the individual heating zones of the oven will be done with a high degree of temperature accuracy, providing an optimal temperature curve.

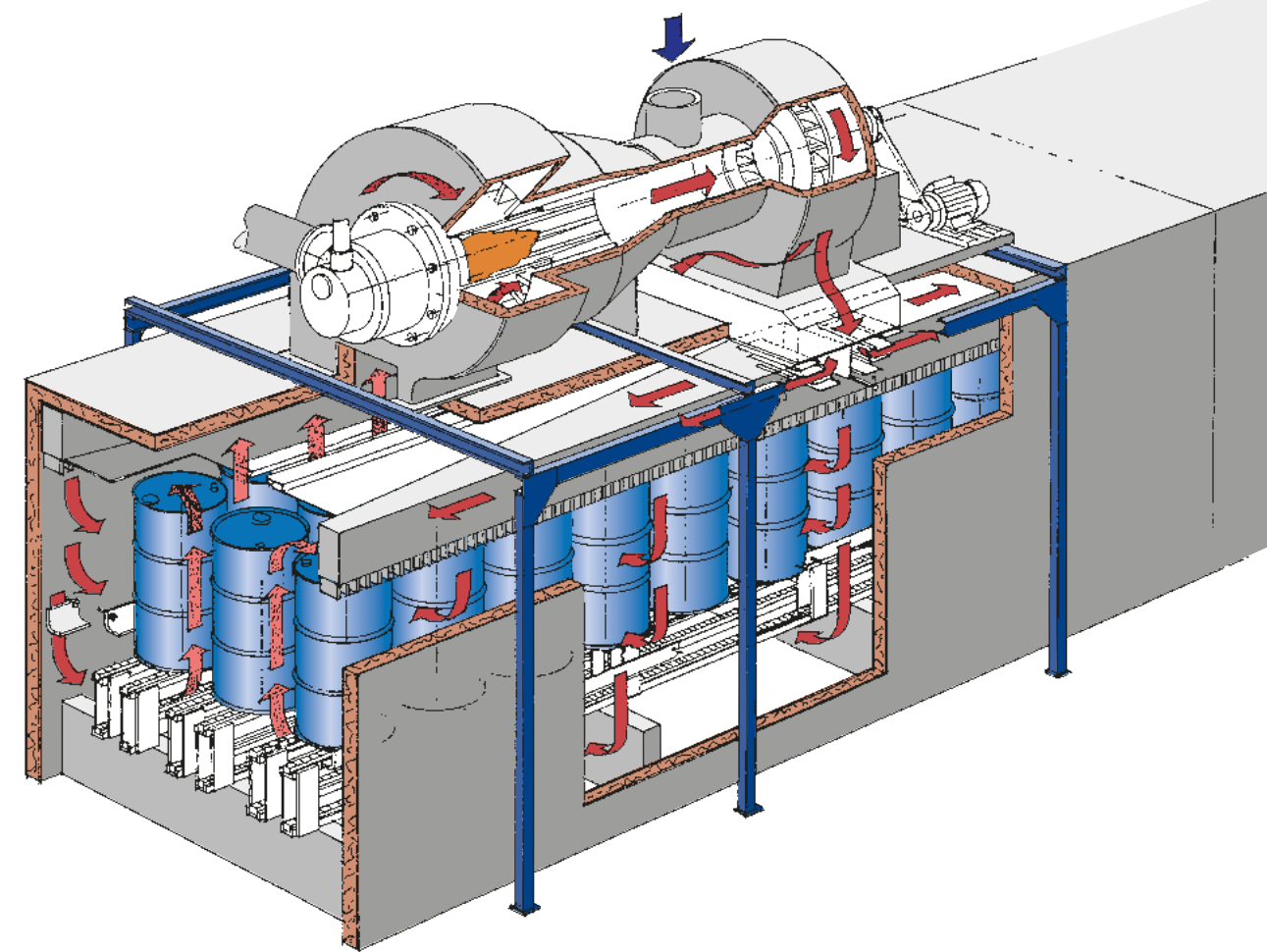
## Drying system

Maintaining a precise drying temperature is essential for drying of solvent-based or water-based paints or lacquers.

To achieve this, Koenig & Bauer MetalPrint drum ovens utilise a hot air convection drying system. Special injection nozzles introduce the hot air into the interior of the drying tunnel. With this injection principle, the amount of hot air circulated between the drums is several times higher than the capacity delivered by the hot air fans. This produces a strong air circulation between the drums while at the same time smaller fans with lower power consumption than normally used are required. The high amount of circulating air and the resulting higher air velocity, achieves a better heat transfer and faster heat up of the drums.



Drum oven for waterbased paint



Airflow inside a 3 row drum oven





## Drum ovens – multiple-row or double tunnel

The drum drying ovens may be designed with 1, 2, 3 or 4 rows of drums or as double tunnel with 2 x 1 or 2 x 2 rows.

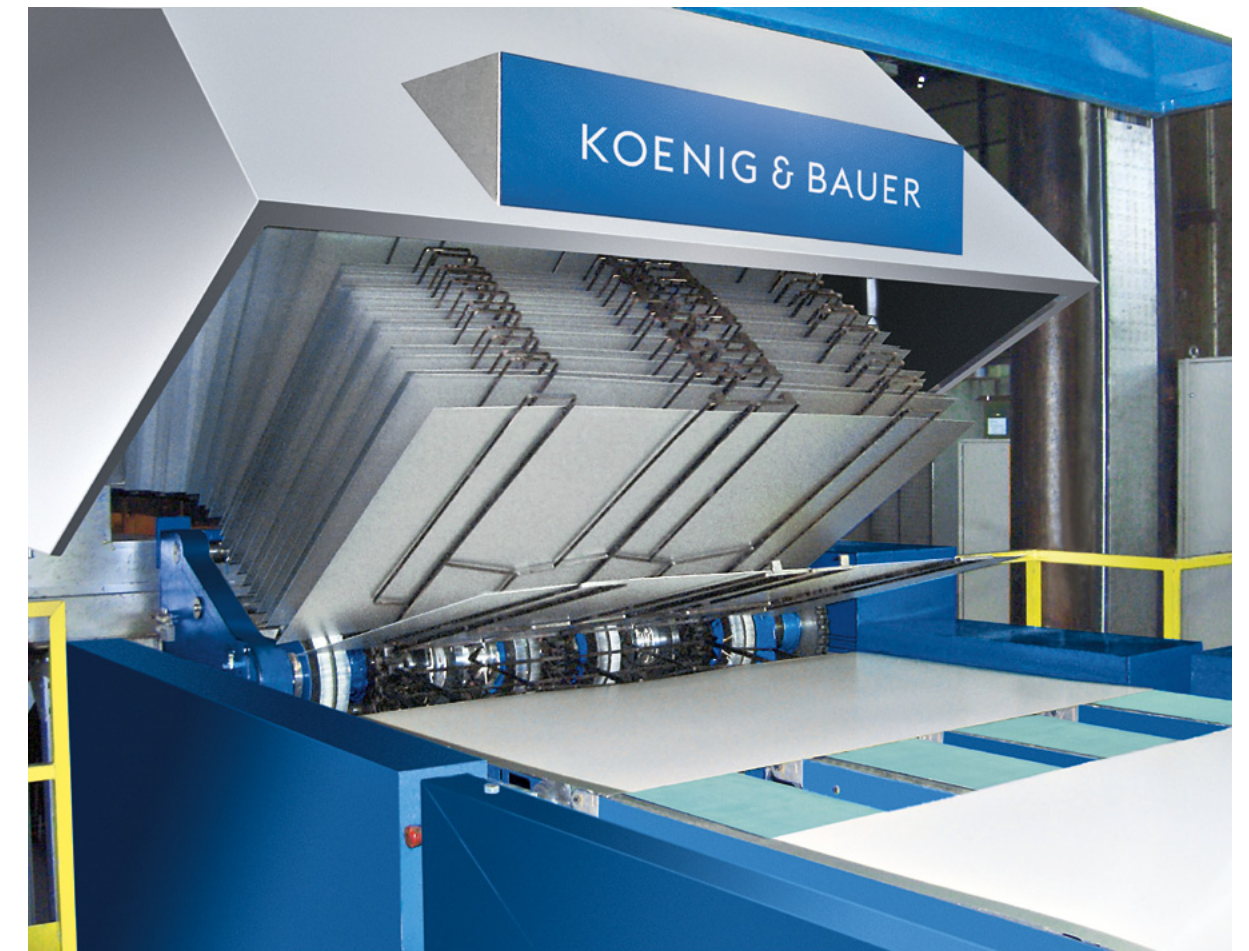
Usually the conveyor system for the standard 55 gallon drums will be a chain conveyor with 2 chains for each drum row. For intermediates and pails alternatively there are also traverse conveyors available.



2 x 2 row double tunnel oven

## Wicket oven for drum sheets

If drums are not spray-painted, but will be roller coated, wicket ovens for heavy drum sheets are required. Koenig & Bauer MetalPrint delivers special ovens, type DBN, with 3 conveyor chains and extra large wickets for this purpose.



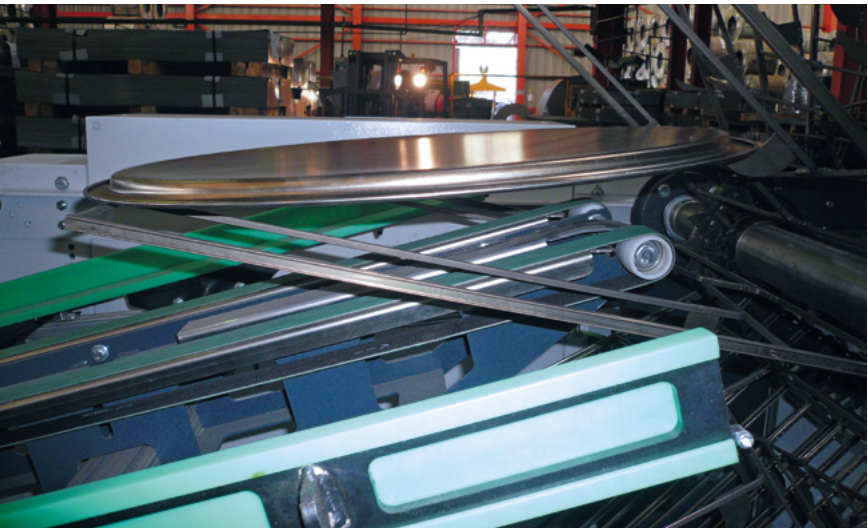
Drying oven for heavy sheets, type DBN



# Drum end ovens

Koenig & Bauer MetalPrint offers two different types of drying ovens for drum ends or lids.

One type is a wicket drying oven where the drum ends will be conveyed in 1 row standing almost vertically in wickets.

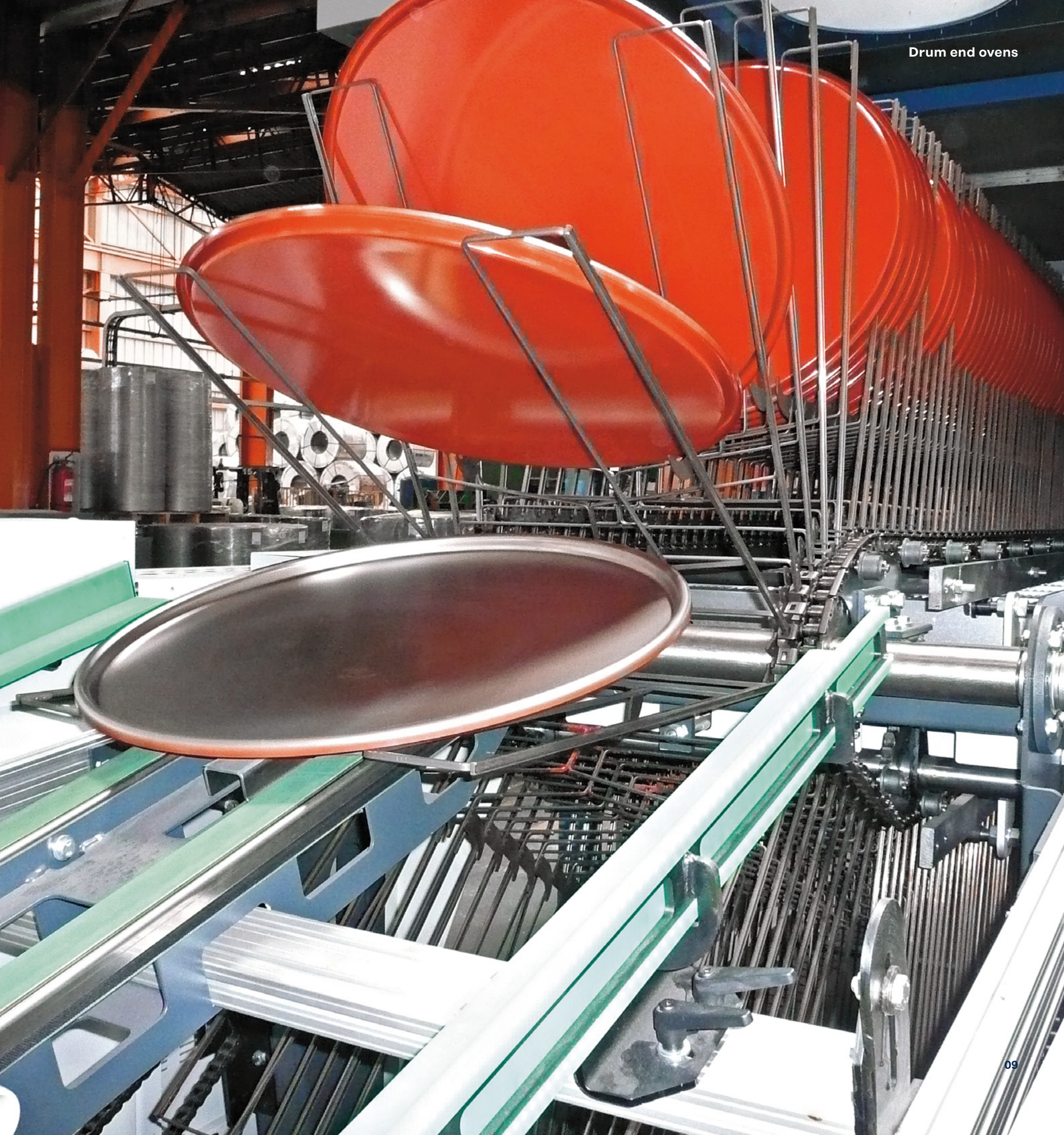


Adaptable unloader for lids

The other type is a drying oven for drum ends that are placed in racks. Each rack contains up to 15 drum ends. Loading and unloading the racks may be done either manually, or upon request automatically.



Rack with 14 lids



Drum end ovens





Enclosure between spray booth and oven

**Optional Equipment**

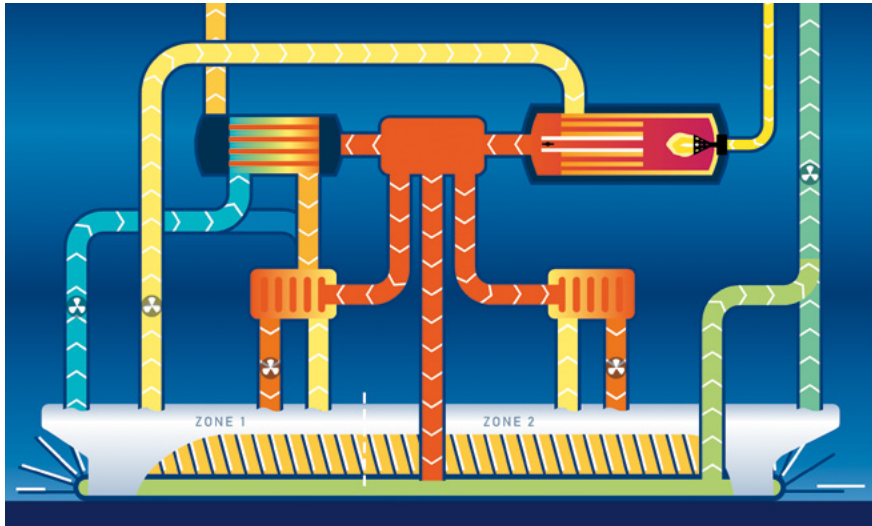
- Enclosures (with or without air circulation) for the area between the spray booth and oven. These are usually only required together with air purification, but also to avoid smell inside the factory hall
- Compressed air operated emergency exhaust fan for ventilating enclosed areas in case of electricity failure
- Digital remote thermometers
- Automatic shut-down and switching on of cooling zone fans
- Sand filters for cooling zone
- Silencers for fans
- Tunnel walls in perforated design for noise absorption.
- Automatic start of oven before shift begin and automatic shut-down program for air circulation fans at shift end

## Cooling of the drums

Good cooling is essential for outside painted drums, since usually after leaving the paint line, the drum will be closed and shipped to the filler. If the cooling was not adequate, a vacuum builds up inside the drum creating major problems at the filling stations. This is the reason Koenig & Bauer MetalPrint offers single step as well as multi-step coolers that provide very high air circulation. Cooling time and cooling capacity are designed according to the climatic conditions on site.





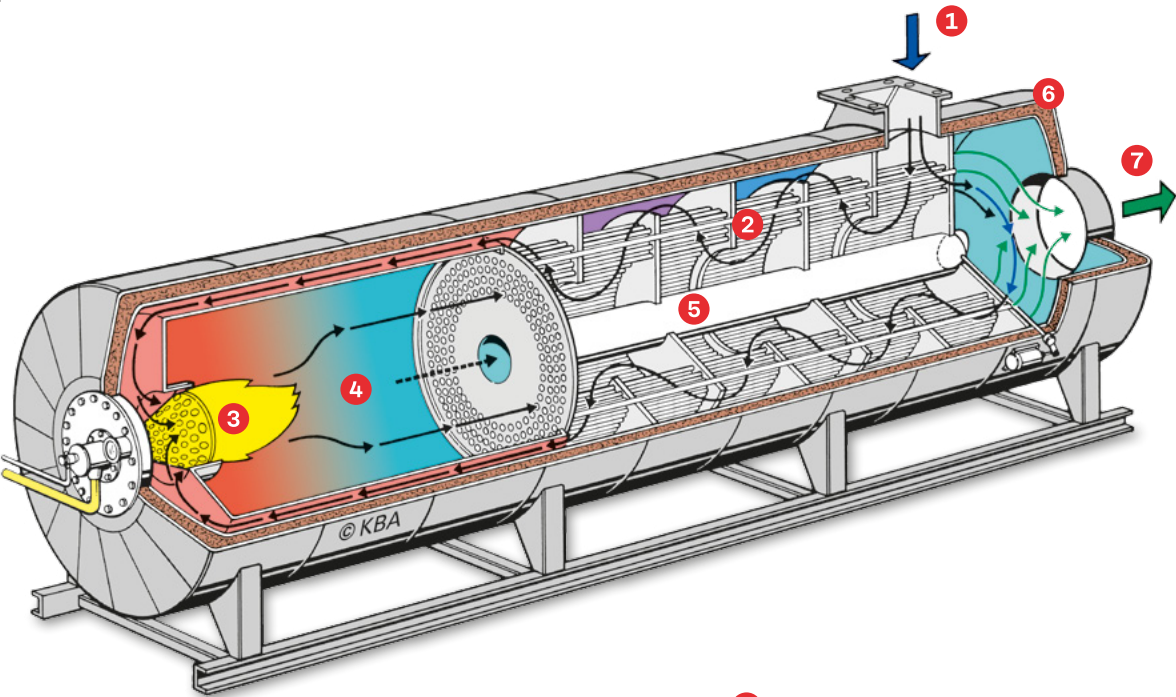


Schematic view of EcoTNV

The EcoTNV system possesses a flexible, high-performance heat exchanger. The heat recovery coefficient of the heat exchanger is set automatically to the maximum attainable value for the current production conditions. The exhaust air volume remains constant. The EcoTNV system is especially suitable as a retrofit package for existing lines or for new decorating/coating or coating lines for lower outputs.

# EcoTNV – increased efficiency, reduced energy costs

The energetically most economic system is the EcoTNV with its flexible main heat-exchanger. The size of the heat-exchanger automatically adapts to the individual production situation and thus always provides the max. possible heat recovery also during changeover times. An EcoTNV system is required for each individual line.



Scheme of an EcoTNV with integrated bypass

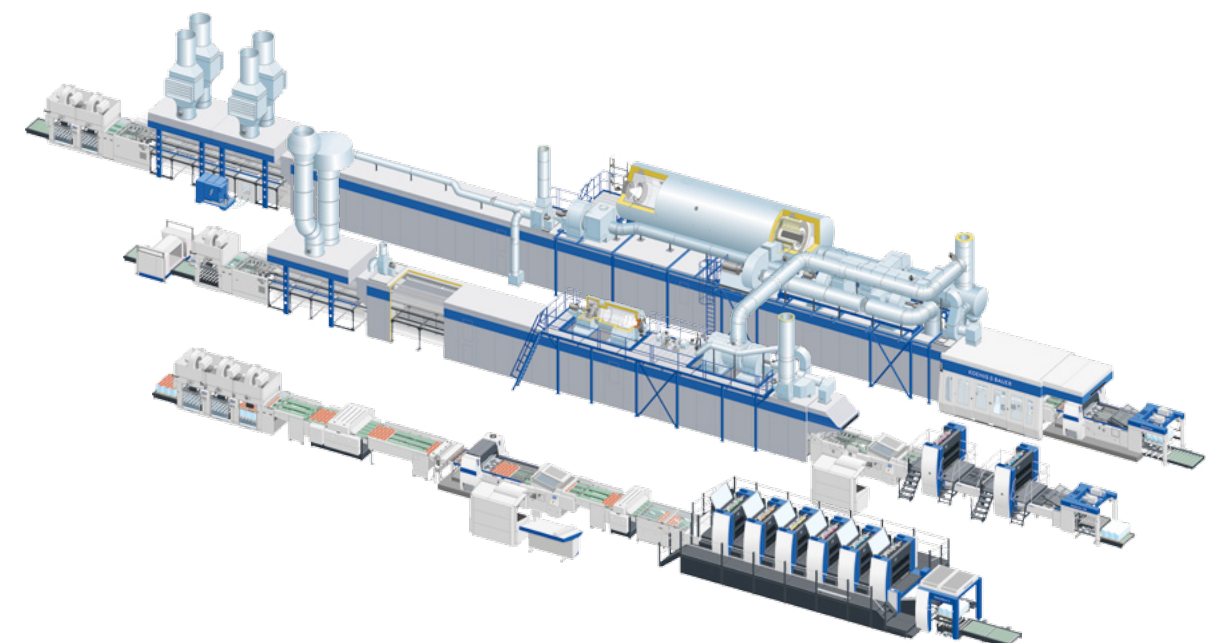
- 1 Exhaust air inlet
- 2 Tubular heat exchanger
- 3 KXB-burner
- 4 Combustion chamber
- 5 Internal bypass
- 6 Insulation
- 7 Purified air outlet



# Koenig & Bauer MetalPrint GmbH

Koenig & Bauer MetalPrint's high level of competence in drying technology for the metal decorating industry results from over 80 years of experience in the field. With more than 100 installations delivered to the drum industry within the last 2 decades, Koenig & Bauer MetalPrint knows about the specific requirements when curing drums, drum sheets or drum ends.

The name Koenig & Bauer MetalPrint stands for quality, innovation and continuous further development. We offer complete solutions which are tailored specifically to the customer's individual requirements.



The illustrations and descriptions may depict or refer in part to special versions and options. Subject to technical and design modifications. Country-specific variants may apply. More detailed information can be obtained from your local Koenig & Bauer representative.



