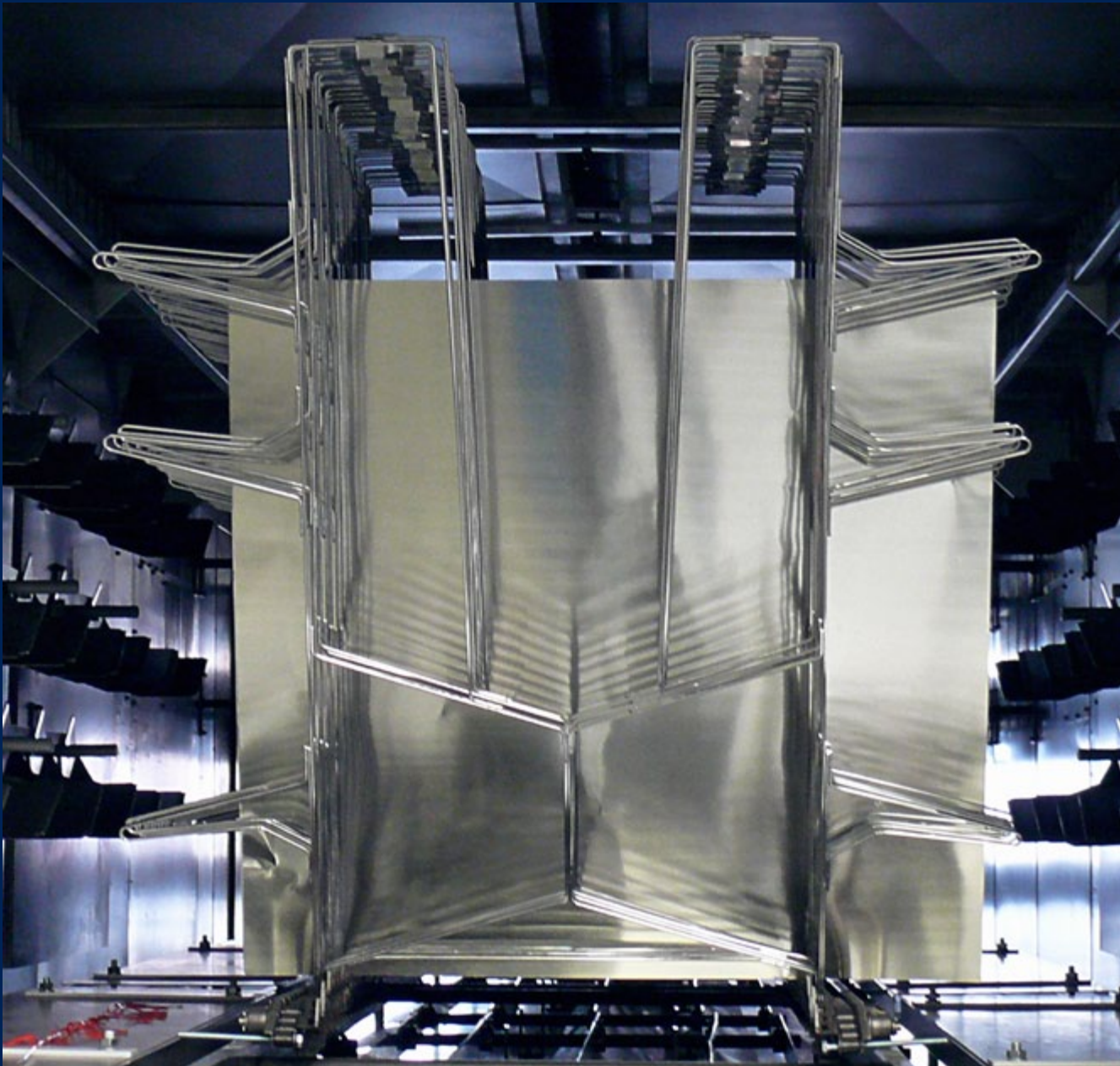


KOENIG & BAUER

Drying Solutions



we're on it.

Continuous Drying Ovens – Solutions for the Metal Packaging Industry

Koenig & Bauer MetalPrint supplies thermal ovens in a variety of designs. The well-established drying technology is used for coating lines, printing lines and printing lines with inline coating.

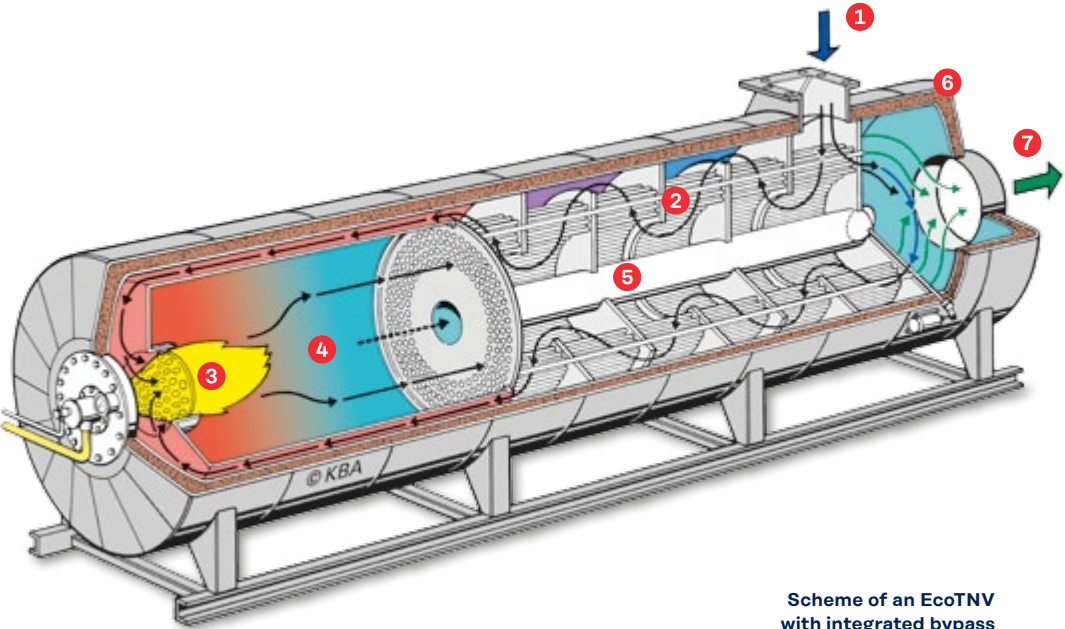
Drum dryers are available in a wide range of versions, all specifically tailored to the needs of our customers.



The systems are particularly energy saving and feature integrated exhaust air purification for use with solvent-based coatings.

Koenig & Bauer MetalPrint has the ideal solution for your requirements

- **Space-saving ovens** for conventional printing lines
- **High-efficiency main drying ovens** for coating lines
- **Pre-drying ovens** for tandem coating lines
- **Customised ovens** for the drum industry
- **Economical inline air purification systems** for solvent-based coating applications



- 1 Exhaust air inlet

2 Tubular heat exchanger

3 KXB-burner
- 4 Combustion chamber

5 Internal bypass

6 Insulation

7 Purified air outlet

HighEcon / EcoTNV – Air Purification with Payback

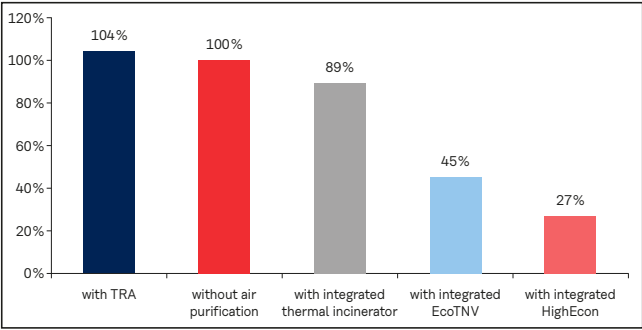
The HighEcon and EcoTNV systems are by far the most economical air purification systems for use on coating lines for metal packaging or drum dryers. Even when compared to installations without air pollution control equipment, both systems achieve a dramatic reduction in gas consumption under normal production conditions with typical changeover patterns. This means that in addition to purification of the solvent-laden air, they also contribute to reduced CO₂ emissions and lower operating costs.

HighEcon TNV

The HighEcon air purification and drying oven system is based on a larger main heat exchanger and fresh-air heat exchanger with a heat recovery coefficient of over 60 percent, a value that remains fixed. Allowance is made for variations in the production conditions by the automatic exhaust air volume control. The exhaust air volume is adjusted between the minimum and maximum settings automatically and progressively. The HighEcon system is especially suitable for new installations and high-performance coating lines.

EcoTNV

The EcoTNV system features a flexible, high-performance heat exchanger. The heat recovery coefficient of the heat exchanger is automatically set 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.



Exemplary calculation gas consumption; wicket drying oven without air purification = 100 %

Your energy-saving potential at a glance with a customer-specific calculation

Koenig & Bauer MetalPrint will support you by performing a profitability analysis determined on the basis of production data that you provide by completing a questionnaire. A clear comparison of preferred technologies is prepared, and shows the respective annual energy costs. This makes a good basis for making the right decision.

Coating Line Solutions with Continuous Drying Ovens

Koenig & Bauer MetalPrint coating lines with thermal drying ovens ensure high production output in combination with excellent quality and cost-effective operation. Significant energy savings, an extremely homogeneous temperature distribution and innovative sheet transportation are just some of the advantages.

Established thermal drying technology

Koenig & Bauer MetalPrint drying ovens have enjoyed a reputation as the best ovens in the world for drying printed and coated metal sheets for several decades. Reliable and

damage-free drying processes are guaranteed even at high speeds. The consistent temperature, the fast and gentle heating phase, and efficient cooling remain the benchmarks for drying ovens to this very day.

Quality under control

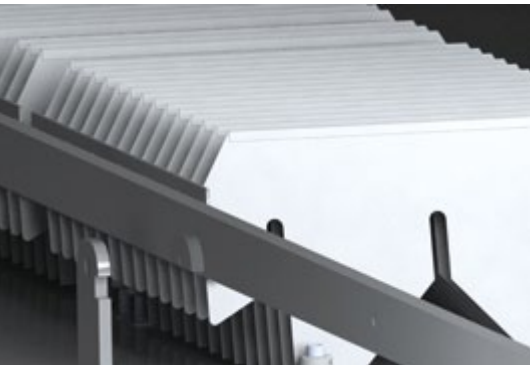
To meet the increased quality requirements of our customers, the air flow in the oven has been optimised further. This means that you retain full control of even difficult coatings and material properties.

The reaction of many BPANi coatings is particularly sensitive to even small temperature differences in the oven. Perfect temperature curves are achieved by using a special nozzle system and an optimised configuration of steering plates in the standard equipment versions.

The optional AirFlow Pro allows precise lateral alignment of a larger number of baffle plates in the tunnel wall within the heating zone. This achieves an even more homogeneous temperature distribution over the sheet. Hot spots or constrictions that can occur at the sides of the sheets can be effectively avoided.



AirFlow Pro with special baffles laterally – for highest quality demands, with double-walled version



AirFlow Lightweight with special grids below – designed for thin and lightweight sheets – eliminates unwanted air currents and sheet flutter

Smooth air circulation with AirFlow Lightweight

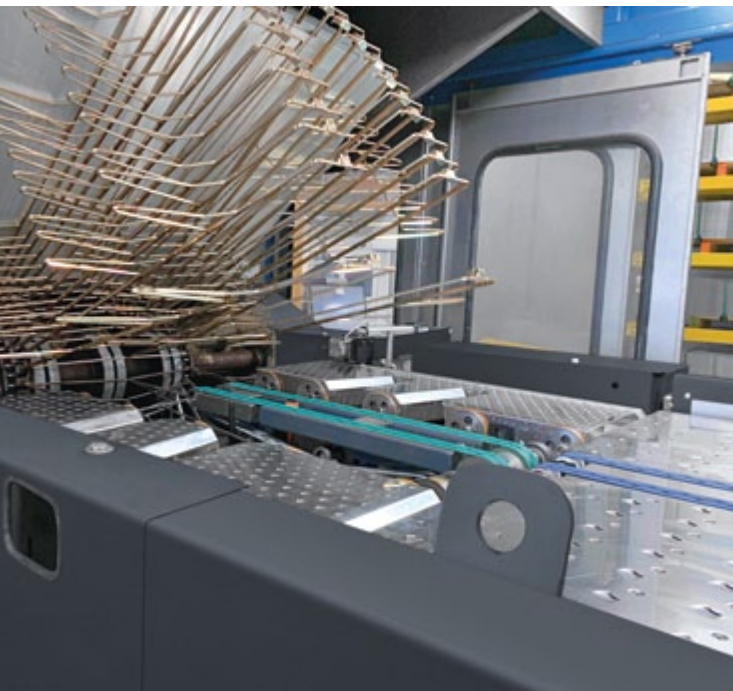
In addition to AirFlow Pro, AirFlow Lightweight also provides support for thin and lightweight sheets. These may be minimally displaced by air turbulence in the oven. Any change in position of the sheet on the wickets can lead to marks. The lateral air guidance with baffle plates ensures a calm air distribution. With AirFlow Lightweight, the air is also directed from below by specially designed baffles. Unwanted air currents are eliminated. Scratches and marks can be reduced significantly.



Standard equipment: double-row baffles

Fewer contaminants in the oven

When the AirFlow Clean and AirFlow Pro options are integrated, the double-walled construction ensures uniform temperatures on the tunnel wall and the baffle plates. Colder areas in which the solvent-laden air can condensate are thereby avoided. The level of contaminants in the tunnel is significantly reduced.



Venturi transport and Venturi loading machine with dynamic sheet control

Innovative Venturi technology for highest production stability

The innovative Venturi sheet transportation system is available for the loading and unloading machine. Air nozzles generate a uniform air cushion on which the sheet can hover. Only two narrow vacuum belts, positioned in the middle of the table, are required to ensure precise sheet transport. The result: stable production even at high production speed. This is especially advantageous for thin materials and scroll sheet. Finally, the set-up times can be shortened, as there is no longer any need for format adjustments.

Alternatives to natural gas

If you intend to use an alternative energy source instead of natural gas, please contact Koenig & Bauer MetalPrint. If suitable, the corresponding dryer components can be designed for the new energy source.

Waste heat recovery

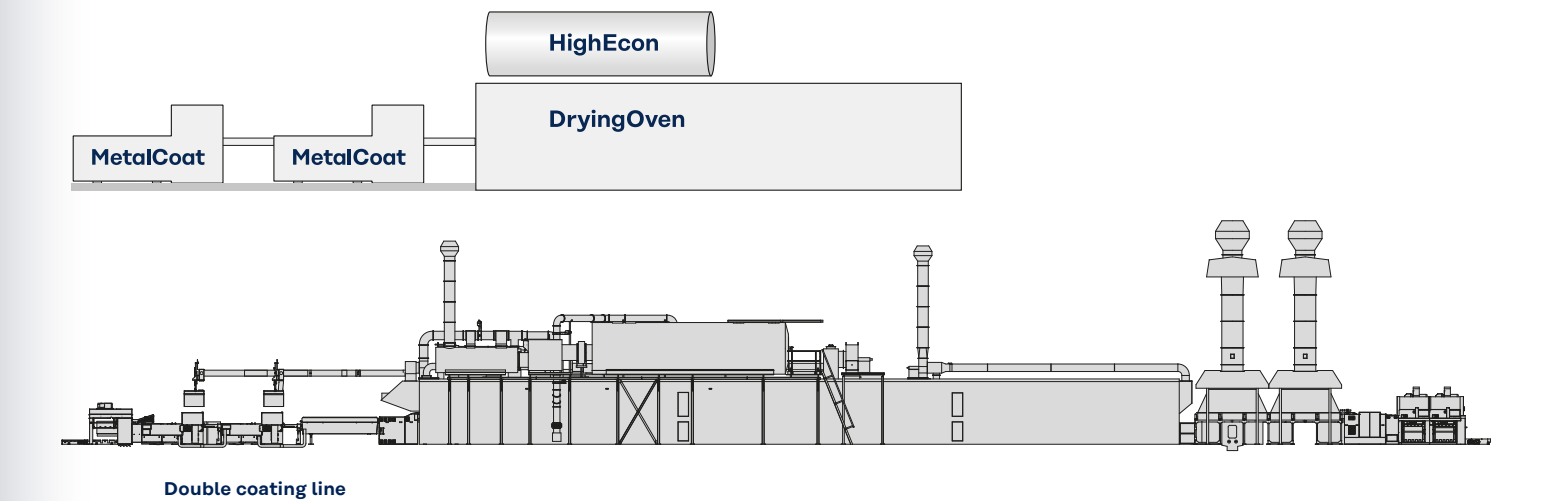
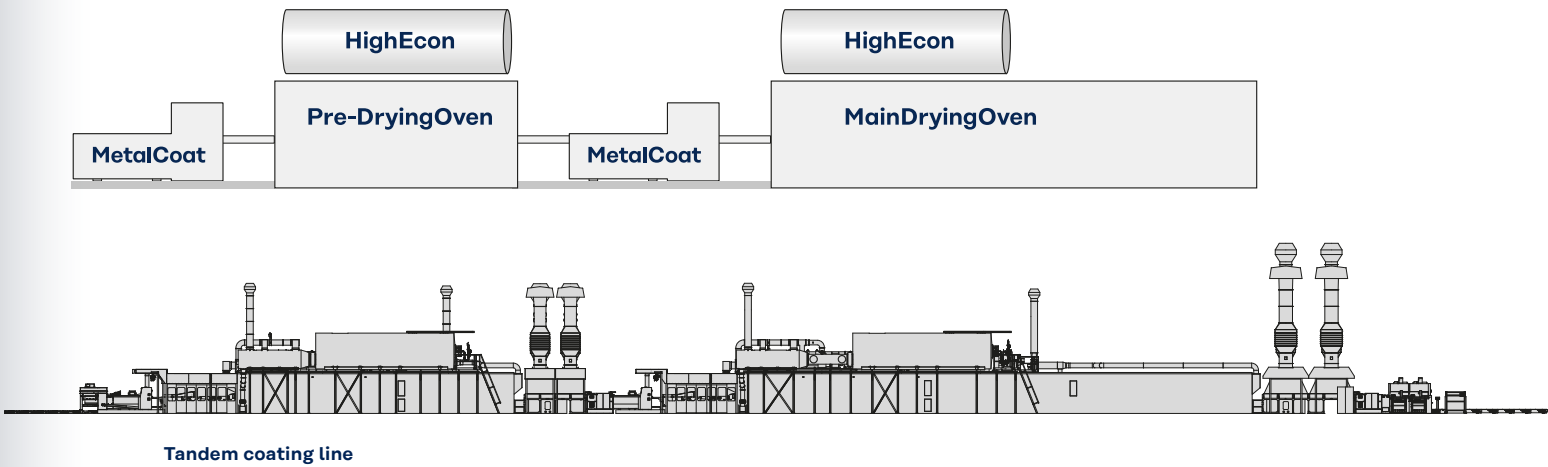
Further savings potential can be exploited by using the waste heat that the thermal dryers release into the surroundings. By making smart use of it for heating or cooling your premises, cooling aggregates or for other applications, you can save a lot of energy and cut CO₂ emissions significantly. Koenig & Bauer MetalPrint will be happy to provide you with support on your road to sustainable production.

Key facts

- Highest efficiency and low gas consumption with the EcoTNV and HighEcon purification system
- Homogeneous temperature distribution within the heating zone
- Option: AirFlow Clean for a clean oven
- Option: AirFlow Lightweight for thin sheets
- Wear-resistant burner control with improved flame detection
- Suction cabin available in different versions
- High-performance cooling zone
- Wicket pre-heating
- Display of gas consumption
- Further savings possible through utilisation of excess heat
- Precise sheet loading and unloading with dynamic vacuum sheet speed control devices. Venturi option for even smoother and damage-free sheet transport on an air cushion

Great Flexibility – Customer-Specific Line Configurations with Thermal Drying

- Printing line with or without an inline coater
- Free-standing single coater – the universal coating line for a wide range of applications
- Tandem coating line with pre-drying oven after the first coating machine and main drying oven after the second coating machine: incredibly productive due to application of the internal and external coating in one pass
- Double coating line with one main drying oven: meet high quality demands with unparalleled efficiency by applying two internal coatings in one pass





Drying Oven Program for the Drum Industry

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

All drum dryers are based on the established Koenig & Bauer MetalPrint drying technology, which is also suitable for use in coating and printing lines. Regardless of whether the oven is needed as a multiple-row, as a double-tunnel or as a wicket oven, Koenig & Bauer MetalPrint has the ideal solution.

- Ovens for spray-coated or lined drums, and intermediate drums or pails respectively, in a 1 to 4-row design
- Double tunnel ovens for simultaneous curing of drums lined on the inside and coated on the outside
- Wicket ovens for drum ends
- Ovens for drum ends in racks
- Energy-saving inline air purification with integrated EcoTNV or HighEcon system



Wicket drying oven for drum ends or lids

Customised heating – Depending on the size or capacity of the installation and the type of coatings and lacquers used (solvent- or water-based coatings, high-temperature or low-temperature baking lacquers), drum drying ovens can be equipped with one, or several, heating units.

This ensures that the drums and/or drum ends are dried in the individual heating zones of the oven with a high degree of temperature accuracy. To achieve an optimal temperature curve, special injection nozzles introduce the hot air into the interior of the drying tunnel. The volume of hot air that circulates between the drums is several times higher than the volume that hot air fans can provide. This produces powerful air circulation between the drums while, at the same time, requires the use of smaller fans with a lower power consumption than normal systems. An excellent heat transfer is achieved and the drums warm up more quickly.

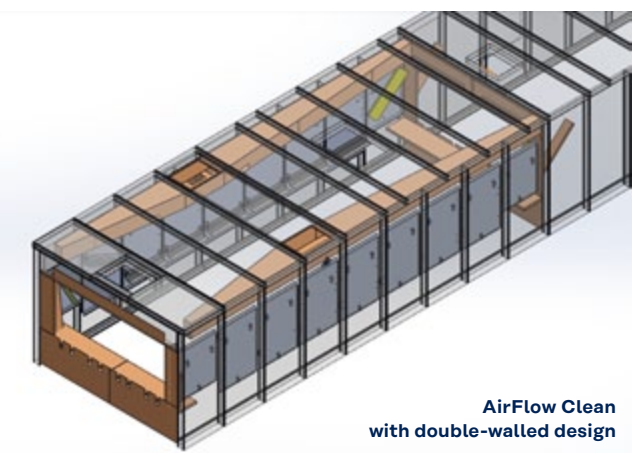
Demand-oriented cooling

Good cooling is essential for drums coated on the outside, because after leaving the coating line, the drum will usually be closed and shipped to the filler. If the cooling process was not adequate, a vacuum builds up inside the drum, creating major problems at the filling stations.

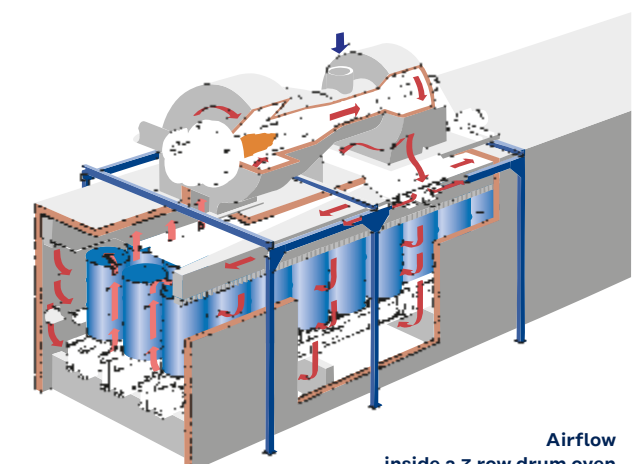
This is the reason why Koenig & Bauer MetalPrint offers single-step as well as multi-step cooling zones that provide a very high level of air circulation. Cooling times and cooling capacity are designed to suit the climatic conditions on site.

Optimised air distribution

The AirFlow Clean optimises the air distribution in the heating zone even further. The double-walled construction changes the flow of air and ensures uniform temperatures on the tunnel wall and the baffle plates. The result is a more homogeneous temperature distribution to the lower areas and fewer contaminants in the tunnel. When a cleaning interval is scheduled, the plates are quick to remove for easy cleaning.



AirFlow Clean
with double-walled design



Airflow
inside a 3 row drum oven

Koenig & Bauer MetalPrint GmbH

Wernerstr. 119-129

70435 Stuttgart, Germany

T +49 711 699 71-0

F +49 711 699 71-670

info-metalprint@koenig-bauer.com

metalprint.koenig-bauer.com

Any part of the text or images may only be used with the permission of Koenig & Bauer MetalPrint GmbH. Images may depict special configurations that are not included in the basic price of the press. The manufacturer reserves the right to make technical changes and modifications to the construction.

Errors and omissions excepted.

602-41-en 03/2024

Printed in Germany