KOENIG & BAUER

MetalCoat 471

we’re on it.

MetalCoat 471 – Smart Line with High-Performance Coating

Technology that has been established for many years has been combined with smart technology and additional optimisations. Koenig & Bauer MetalPrint's state-of-the-art coating line featuring MetalCoat 471 is ready to modernise your production. It is equipped with the latest technology, enabling you to increase productivity and machine availability, and reduce production costs.

Highlights at a glance

Increase in productivity

- Fast line setting with job data management for repeat jobs
- Intuitive and fast operation with the new operating concept that includes two central touch panels at the coater and at the stacker, and local operating stations at each machine

Increased operational reliability

- Fast and safe synchronisation of the machines in a line, automatic adjustment even during a machine stop
- Reliable sheet travel control to avoid collisions in the event of sheet misalignment or sheet loss thanks to continuous sensor monitoring
- Precise sheet travel through the new Venturi conveyor systems
- Display of machine status and clearly indicated error messages in the event of a fault
- The use of smart components ensures in-depth remote diagnostics and fast remote assistance

Reduction of operating costs

- Reduced energy consumption thanks to demand-controlled pumps (vacuum, compressed air) according to substrate properties
- Established EcoTNV and HighEcon technology for low gas consumption
- Scheduling of demand-oriented maintenance intervals
- Reduction of service costs due to fast remote service

MetalCoat 471

The established technology used for the renowned MetalCoat 470 has been combined with the latest technical innovations and additional optimisations. The result is the new MetalCoat 471.

The MetalCoat meets the highest conceivable requirements in terms of quality and productivity. With its proven three-roller coating application system, the MetalCoat is up to any challenge. Both problematic coatings and demanding substrate qualities are handled reliably and at high speeds.
The MetalCoat 471 is available as a free-standing coating machine. Touch panels on the coating machine and the stacker give the operator a full overview of the entire line. With manual coating layer thickness settings made using hand wheels, the machine remains easy to operate. An optional intercommunication system improves the communication between operators, and integrated cameras enable a view into different areas. Electrical settings can be stored and used for faster set-up for repeat or similar jobs.

Key facts

- Designed for high speed and large sheet formats
- Suitable for tinplates, TFS as well as aluminium sheets (optional)
- Coater is available with VacuMatic infeed table with electronic format settings and gripper drum for high-precision cross or longitudinal stencilling and spot coating
- Accurate film weight and low coating consumption with precise three-roller coating head
- Easy setting of film thickness by means of wheels with scales
- Pneumatically controlled scraper blade system for the impression cylinder
- Easy access for washing, operator can stand upright
- Fast roll-out for coating cylinder change
- Delivery with food-compliant round belts for fast and tool-free format change
- Pneumatically supported lifting and lowering of the delivery
- Robust design with low maintenance requirements
- Clear error messages and effective remote support
- Machine status shown at central operating station and indicated by lights
- Electronic synchronisation of all line components
- Sheet travel control with detection of lost sheets
- Job data management for repeat or similar jobs
- Demand-oriented energy consumption
- Visualisation of compressed air and vacuum settings
- Operation using central touch screen and local operating stations
- Communication by intercom system
- Less foundation work required

Safe Sheet Transport throughout the Entire Coating Line – High-Accuracy Coating

VacuMatic infeed table
- For solid and spot coating
- Perfect register
- Electronic format settings
- Demand-oriented vacuum settings, adapted to the sheet weight
- Stable sheet transportation with reduced maintenance requirements
- Option: automatic format settings
- Covered using sliding lids
- Format and vacuum settings can be stored and used for repeat or similar jobs

VacuMatic infeed table

Gripper drum for solid and spot coating
- Exact sheet transfer by magnets
- Option: perfect registration by vacuum for aluminium sheets

Gripper drum

Round belt delivery
- Safe conveyance of sheets using round belts
- Small contact surfaces between the round belt and the sheet
- Fast format adjustments
- Low cleaning requirements
- Pneumatically supported lifting and lowering at the push of a button
- Food-compliant round belts

Round belt delivery MetalCoat 471

Scraping Systems – Optimal Scraping Performance for High Production Quality

Standard scraping system
- Uniform distribution of force across the width
- Good scraping performance
- Fast cleaning
- Additional varnish pan and scraper bar available for fast change-over

Flexo scraping system
- Fast scraper blade change in about two minutes
- The scraper blade is secured in a quick clamp assembly
- Short run-in time (approx. one minute)
- Uniform distribution of force across the width
- Optimal scraping performance
- Longer blade service life
- Minimises washing time by means of special shape of the coating pan

Flexo scraping system

Solvent scraping device

Solvent scraping device
- Secondary scraper device for more production flexibility
- Additional impression cylinder cleaning after main scraper
- Straightforward operation and adjustment as the solvent blade is adjusted pneumatically

Blade grinding device
- Wet grinding unit suitable for sharpening industrial blades
- Carriage and grinding head with automatic infeed
- Automatic burr removal from blades
- Mechanical clamping kit included

Blade grinding device and burr remover

Fast Make-Ready – Designed for Easy Operation

Fast coating cylinder change in upright position
- Pneumatic clutch for a change of coating cylinder within just two minutes
- Fast roll-out on rails
- Coating cylinder lifting device integrated into the oven exhaust air cabin

Rollout on rails

Laser-assisted rapid zero setting of the coating cylinder
- Fast make-ready of high-precision cross coating jobs
- Less waste as the basic setting is made without sheets

Laser-assisted zero setting

QuickChange kit
- Faster coating changes
- Final cleaning of parts that convey coatings completed outside the machine

QuickChange kit

Quick release for varnish pump
- The pump is easily accessible
- Varnish pump is installed on a platform
- Fast removal using quick release clamps

Quick release for varnish pump

Quality Control – Stable Production with Inline Measuring Devices

Inline sheet position control
The system can be integrated into Koenig & Bauer MetalPrint coating lines. It is positioned above the coating machine delivery and detects any twisted and misregistered sheets during the coating process. Data transfer is possible via OPC UA Ethernet and USB port. Intuitive operation is ensured by the clear touch display.

Versions
- Detection of skewed sheets
- Detection of skewed sheets, lateral and longitudinal offset

Inline sheet position control

Coating thickness measurement
The Specmetrix system can be integrated into Koenig & Bauer MetalPrint coating lines. The exclusive ruggedised optical interference technology is the best technique available for real-time non-contact measurement for coating thicknesses or film weights in a wet or dry state.

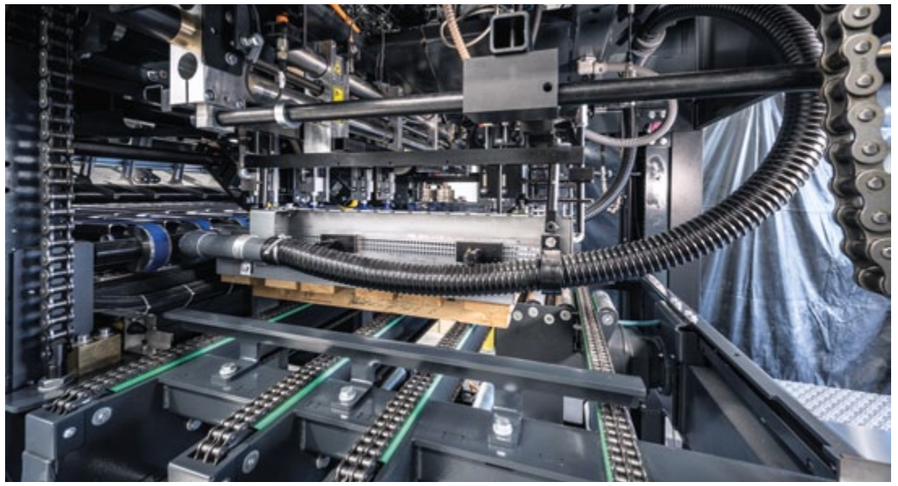
Inline coating thickness measurement system

Details and advantages of an inline coating thickness measurement system
- Continuous production control
- Integration of measuring equipment behind coating machine delivery
- Measurement of wet film weight or thickness using two probes, monitoring left and right-side variance to maintain consistency
- Improved coating process control with continuous real-time film weight data
- Significant cost savings with more stringent control processes and optimised coating application
- Improved production efficiency, no need to wait for offline results
- Recording of all data in real time and storage of data collected for quality reports
- External, internal and protective coatings measured as single or dual layers
- Faster set-up times
- Less rework and waste

Varnish heating device
- Heating of the varnish to the set temperature
- Highest quality at stable production conditions

A New Generation of Single Sheet Feeders Feeder Type 781

The established technology of the past has been combined with the latest technical innovations and additional optimisations. The result is the new feeder type 781 – nothing less than the new benchmark in the single sheet feeder sector.



Stop&Turn with chain conveyor at the new feeder type 781

New features[1]

- Power consumption on demand
- Material-specific automatic regulation of vacuum and compressed air possible
- Digital visualisation of compressed air and vacuum settings
- Standardised interface for operation of the MetalCoat and Mailänder using control panel
- Chain-driven roller conveyor segment for pallet infeed included
- Infeed and removal possible in infeed direction, drive side and operator side[2]
- No plinth necessary
- Less unplanned downtime due to preparation for predictive maintenance
- Fill level monitoring at the double sheet ejection tray
- Actively cycled air-assisted sheet separation for trouble-free production
- Central setting options using HMI: stack height sensor, compressed air, vacuum, etc.

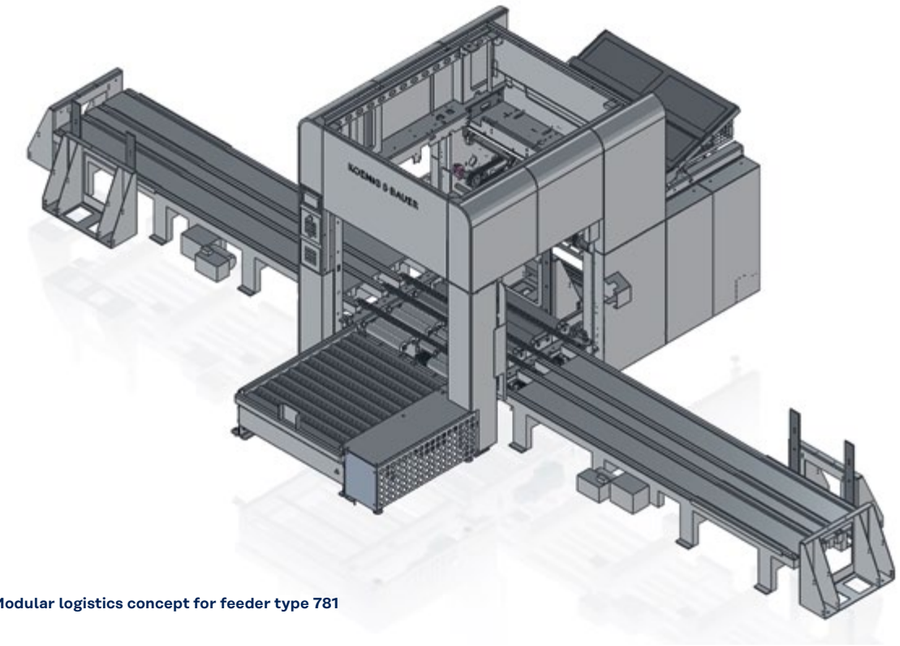
New optional features

- Modular logistics extension
- **NEW:** chain conveyor is now compatible with Stop&Turn
- Automation of infeed and removal as well as alignment

[1] Cross-feeder software packages or feeder specific software packages may be required.
[2] Optional additional features such as a chain-conveyor and Stop&Turn may be required.

New and Fully Modular Feeder Logistics

We also offer a completely new logistics portfolio for our new feeders. In this case, we direct our focus on complete modularity so that you can find the right logistics solution for your production line faster and easier than ever.



Modular logistics concept for feeder type 781

Solutions for every use case

- Stop&Turn in combination with chain conveyor for fast, convenient and automatic front alignment of the pallet and facilities for pallet loading from one or two sides within the feeder frame
- Modular roller conveyor extensions with standardised length
- Modular chain conveyor extensions with standardised length
- Turntable for space-saving material loading

Your benefits

- Fast pile changes and automation options due to detection of pallets by sensor
- Space-efficient access to the production line with forklifts
- Even easier and faster loading and unloading

MetalCoat

Technology at a Glance

MetalCoat – High Performance Coating

Efficient conventional line with integrated air purification system.

Stacker logistics
Customer-specific solutions
- Fully modular and standardised roller conveyor for motorised and automatic removal of the pallets
- Fully modular and standardised turntable for space-saving material loading
- Chain conveyor in two different lengths can be extended with standardised and modular extension units for one additional pallet each
- Inline pile turner type 823

Metal decorating line control
Various line options for maximum productivity
- LiveCam & LiveCam Pro monitoring and video streaming to HMI (optionally with advanced functionality)
- VisuEnergy X – measurement and visualisation of energy consumption plus customised consulting
- DefectSheet Tracking
- Line SetUp – upgrade of the local job data management and communication with MES incl. various automation options for process steps
- DataCollection – interface to ME system for machine data acquisition
- VocalLink – intercom system for maximum convenience in line communication

Stacker
The new benchmark in sheet handling at the end of the line
- Dynamic vacuum overhead brake with on-demand power supply
- Fully modular and standardised design with one, two or three boxes
- Non-stop operation possible with double or triple-box unit
- Central setting options using HMI: format adjustment, compressed air, vacuum

StackGuard
Get the maximum out of the stacker
- Skew control at sheet infeed of stacker
- Slip monitoring with trend analysis
- Collision monitoring on the stop spring

Unloading machine
Dynamic sheet accelerator
- Precise sheet transfer from wickets to the following conveyor by vacuum belts
- Demand-oriented energy consumption during production, consumers are only active when sheet is present
- Fewer sheet contact points with the Venturi option
- Stable production at high speed

Thermal drying oven
Cost effective with low gas consumption
- Operation using main touch panel
- Uniform temperature distribution in the heating zone with AirFlow Pro with specially designed baffles
- Option of AirFlow Lightweight for thin sheets available
- Highest efficiency and low gas consumption with the EcoTNV and HighEcon purification system
- Temperature control for prevention of tin flow
- Wear-free burner control with improved flame detection
- Exhaust air cabin
- High-performance cooling zone
- Wicket pre-heating
- Recording and display of electricity and gas consumption
- Fast remote support
- Further savings possible through waste heat recovery

Loading machine
Dynamic sheet control
- Slippage-free and precise positioning of the sheets
- Fewer sheet contact points with the Venturi option
- Transportation bridge
- Demand-oriented energy consumption during production, consumers are only active when sheet is present
- Stable production at high speed

MetalCoat
Reliable high-performance coating
- Excellent coating results with three-roller coating unit and manual adjustment of the coating thickness
- Operation using touchscreen or local settings using wheels and membrane switches
- Infeed table with electronic format settings and high precision for spot or solid coating
- Quick-release for varnish pump for easy and fast removal
- Round belt delivery for contact-reduced sheet transportation
- Detection of lost sheets
- Extraction of solvent-laden air using extraction hood

Feeder
High-performance single sheet feed
- Power consumption on demand and material-specific automatic
- vacuum and compressed air regulation possible
- Continuous pile lifting
- Digital visualisation of compressed air and vacuum settings
- Suitable for tinplates, TFS as well as aluminium sheets (optional)
- No plinth necessary
- Fast lifting and lowering of pile frame
- Double sheet ejection system with option for monitoring the fill level
- Central setting options using HMI: stack height sensor, compressed air, vacuum, etc.

Customised feeder logistics
A diversity of solutions tailored to your individual needs
- Stop&Turn in combination with chain conveyor for fast, convenient and automatic front alignment of the pallet and facilities for pallet loading from one or two sides within the feeder frame
- Fully modular and standardised roller conveyor for motorised and automatic removal of the pallets
- Fully modular and standardised turntable for space-saving material loading
- Modular chain conveyor extensions with standardised lengths
- Turntable for space-saving material loading

Logistic automation
Highest efficiency in feeding your line
- Automatic pile feeding and lifting of the stack
- Automatic alignment of the stack (Stop&Turn is a prerequisite)
- Automatic stack removal (chain conveyor is a prerequisite)

New Stacker – Type 808

The established technology of the past has been combined with the latest technical innovations and additional optimisations. The result is the new stacker type 808 – nothing less than the new benchmark in sheet handling at the end of your line.

New features[1]

- Power consumption on demand
- Material-specific automatic regulation of vacuum and compressed air possible
- Digital monitoring of compressed air and vacuum settings
- Skew control
- Collision monitoring stop spring (control)
- Slip monitoring with trend analysis
- Lighting and camera monitoring for each box
- Less unplanned downtime due to preparation for predictive maintenance
- Automatic removal of pallets in line direction, drive side and operator side[2]
- Central setting options using HMI: format adjustment, compressed air, vacuum, etc.

New optional features

- Modular logistics extension

[1] Cross-stacker software package or stacker-specific software packages may be required.
[2] Optional additional features such as a chain-conveyor may be required.

New and Fully Modular Stacker Logistics

We also offer a completely new logistics portfolio for our new stacker. It has the same focus as the new feeder logistics: we offer complete modularity so you can find the right logistics solution for your production line faster and easier than ever before.

Solutions for every use case

- Roller conveyor for the stacker can be extended with standardised and modular extension units for one additional pallet each
- Modular roller conveyor extensions are also available with a gear drive
- Chain conveyor can be extended with standardised and modular extension units for one additional pallet each
- Turntable for space-saving material loading

Your benefits

- Fast pile changes and automation options due to detection of pallets by sensors
- Space-efficient access to the production line with forklifts
- Even easier and faster unloading

Modular logistics concept for stacker type 808

Coating Line Solutions with Continuous Drying Ovens

Koenig & Bauer MetalPrint coating lines with thermal drying ovens ensure high production output combined with excellent quality and cost-effective operations. Great energy savings, automated set-up functions and intelligent control are just some of the advantages.

Koenig & Bauer MetalPrint has developed a new generation of smart drying ovens. The established energy-saving HighEcon drying oven concept has been rounded off by the use of the latest technology.

Cost-efficient production with demand-oriented consumer control
All consumers are adjusted on a demand-oriented basis. The power required in the cooling zone is therefore adapted to the actual temperature, and only uses as much energy as necessary to reach the target settings. The fans of the loading and unloading machine are only activated when a sheet is actually transported. This saves energy costs and reduces noise pollution.

Everything at a glance with the new operating concept
All settings can be made using the two touch panels at the coating machine and the stacker. By using the available information and an intelligent algorithm, all settings can even be made automatically. The current settings and the electrical and gas consumption values can also be viewed at both line control panels. Additional local control points make work convenient and help avoid unnecessary runtimes.

Fast remote support
If service or support is required, the Koenig & Bauer MetalPrint service technicians can view all the necessary information and settings by means of remote access. 70 percent of the usual support services and optimisations can be performed remotely. With the LifeCam line option, technicians even obtain insight into all relevant areas, just as if they were on-site. This saves costs and time and enables a quick return to efficient production.

Key facts
- Highest efficiency and low gas consumption with the EcoTNV and HighEcon purification system
- Operation using two central touchscreens and local control stations
- Uniform temperature distribution in the heating zone with AirFlow Pro with specially designed baffles and reduced contamination due to double-walled construction
- Option: AirFlow Lightweight for thin sheets inline temperature control for prevention of tin flow
- Wear-free burner control with improved flame detection
- Exhaust air cabin in different versions
- High-performance cooling zone
- Wicket pre-heating
- Recording and display of electricity and gas consumption
- Data stored and automatic settings with optional Line SetUp
- Fast remote support
- Further savings possible through waste heat recovery
- 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

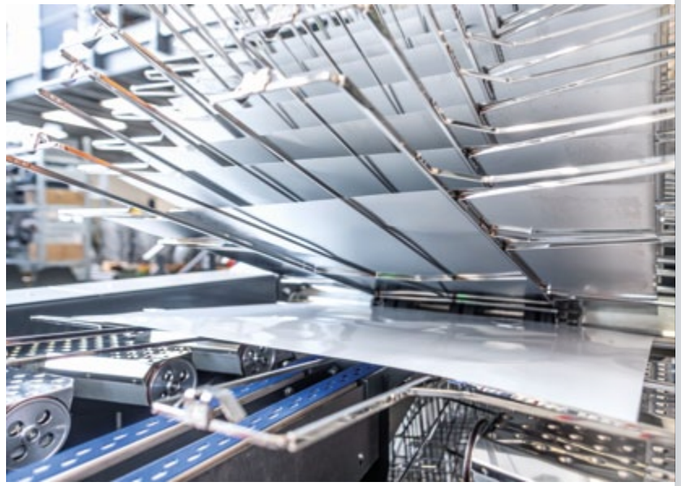
Quality under control
To meet the increased quality requirements of our customers, the air flow in the oven has been optimised further. This means that you retain full control of even difficult coatings and material properties at all times.

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

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. AirFlow Pro allows precise lateral alignment of a larger number of baffle plates in the tunnel wall within the heating zone. Compared with the previous solution, 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. Continuous temperature measurements also help to detect and prevent tin flow and other deviations from the target status.

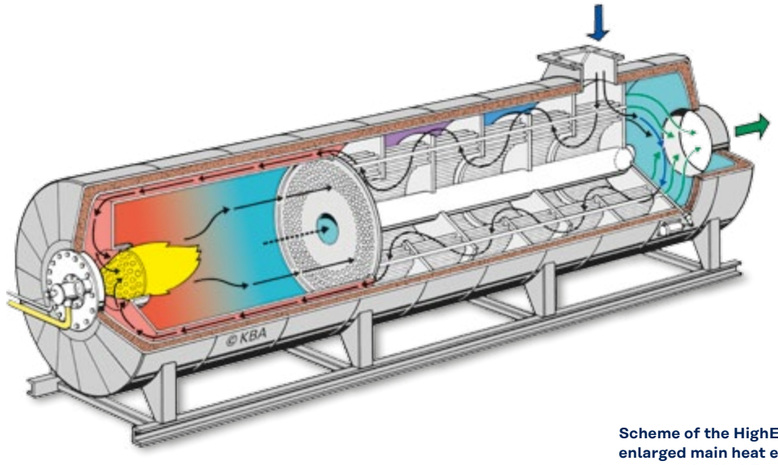
Smooth air circulation with AirFlow Lightweight
In addition to AirFlow Pro, AirFlow Lightweight also provides support for thin and lightweight sheets. These may be minimally displaced by air turbulence in the oven. Any change in position of the sheet on the wickets can lead to marks. The optimised lateral air guidance 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.

NEW – 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 move. 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.



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. Even when compared to installations with no 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 CO_2 emissions and lower operating costs.



Scheme of the HighEcon TNV with enlarged main heat exchanger, the centerpiece of the HighEcon drying oven

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 maximum heat recovery coefficient 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.

Metal Decorating Line Control

Improve Your Production Processes with Powerful Line Options

With Metal Decorating Line Control (MDLC), we are offering a unique selection of single-unit-spanning options for integration into our new coating line. Perfect for maximising the potential of your line.

MDLC: LiveCam
Live monitoring of all key areas of the line and central display on HMIs. The following areas are covered:

1. Loading machine in front of the oven incl. delivery of the coater
2. Unloading machine and transport area to the stacking unit
3. Each box in the stacking area (separate image for each box)

In the basic version, a live image is transmitted. This feature can be upgraded with MDLC: LiveCam Pro, which offers the opportunity of view any time segments over and over again. In addition, an optional slow-motion function can be activated when viewing a time segment.

MDLC: DefectSheet Tracking
Waste sheets in the good stack – a nightmare! To prevent this, the option offers a function to track one or more sheets identified as defective through the oven, and then automatically separate them from the good sheets. The separation takes place in a box defined as a wastebox at the end of the line.

MDLC: VisuEnergy X
Our energy management system for the MetalCoat 471 lines. From recording and visualisation to consulting and developing an energy-saving concept: VisuEnergy X allows us to ensure that you save money greener than ever before by reducing your carbon footprint. Scan for more information.

MDLC: DataCollection
This option collects a great variety of data with unprecedented precision. Overall, this creates a basis for faster, more accurate and more efficient data processing, which can lead to better decision-making, increased productivity and improved operational efficiency. The data is transferred using the industry standard OPC UA. Whether the data is used for ongoing recalculations, improvement of process steps, modern shop floor management or for documentation purposes only – there are almost no limits to how you can use the data. Another new feature is the collection of energy consumption data, categorised by gas and electricity consumption.

MDLC: Line SetUp
Upgrades local job management on modernised coating lines and links your production line(s) to the management system. Job-specific information thereby reaches the line on a digital level, where it is consistently used for automation. This not only saves time during set-up, but also ensures a consistent quality of your products. This is made possible by an intelligent interpretation of the job data. The result allows values for settings to be derived – even when the job is running for the first time.

MDLC: VocalLink
This option adds an intercom system to your new line and enables convenient and efficient reciprocal communication for two or more operators. The microphones and speakers are integrated centrally at the HMIs at the stacking and coating machine (optional upgrade for tandem lines).

Conventional Line with MetalCoat 471 and Thermal Drying: Technical Data

Sheet properties				
Maximum	1000 x 1200	mm	39.37 x 47.24	inch
Minimum	510 x 710	mm	20.08 x 27.95	inch
Thickness	0.12 – 0.50	mm	0.0047 – 0.0197	inch
Weight	0.5 – 2.6	kg	1.102 – 5.732	lbs
Cylinder diameter at coating machine				
Spot coating	Ø 328.7	mm	Ø 12.94	inch
Plain coating	Ø 324 – 339 mm	mm	Ø 12.76 – 13.35	inch
Production speed [1]				
Maximum mechanical speed	up to 8000	sheets/h	up to 133	spm
Feeder pile				
Maximum weight	3500	kg	7716.18	lbs

[1] Dependent on individual processing parameters, e.g. the lacquer and substrates used.

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.

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