

Prevent Static Electricity &
Dryness Related Issues

Humidification
Systems for

PRINTING INDUSTRY

Dry Fog Humidification System:

8 CASE STUDIES

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“The Fog Engineers”

H. IKEUCHI & CO., LTD.



Our Humidification Systems

Thank you for your interest in "Dry Fog Humidification System for Printing Industry: 8 Case Studies."

Explore Dry Fog humidification solutions to the issues presented by static electricity & dryness in the printing industry. We will go over the various real-life examples presented by the diverse printing methods.

Should you have any interest or questions, please feel free to reach out to us via our inquiry form at your convenience.

Hydraulic & Pneumatic Humidification



Hydraulic Humidification
AirULM

Ideal for spaces with ceiling heights above 3.5 meters.

Sprays fog from nozzles using **only water pressure**.

Operating water pressure: 6.0 MPa
Mean droplet diameter: 15 to 30 µm
Utilities: purified water and a high-pressure pump





Pneumatic Humidification
AirAKI

Ideal for spaces with low ceiling heights and where **targeted humidification is needed**.

Sprays fog using **water and compressed air**.

Operating water pressure 0.1 to 0.4 MPa, air pressure 0.2 to 0.5 MPa
Mean droplet diameter: 7.5 µm
Utilities: purified water and an air compressor

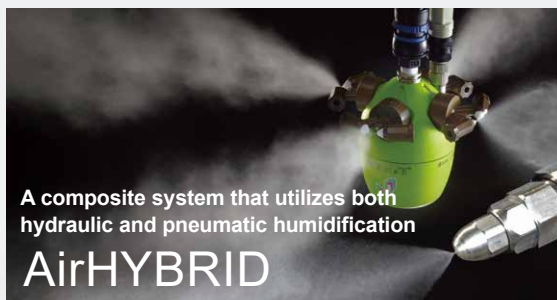
Annual Operating Costs and CO₂ Emissions

	 Hydraulic humidification	Pneumatic humidification	 Reference Steam humidification (electric heater type)
Annual operating cost (US\$)	3,400	8,270	30,200
Annual CO ₂ emission (ton)	6.9	26.1	133.5

The operating costs for the hydraulic humidification are significantly more economical. Printing companies that have been using pneumatic humidification systems are also switching to the hydraulic one.



This scenario is based on an effective humidification capacity of 200 liters per hour and an annual operation time of 2,000 hours. Costs account for water and electricity only, and maintenance costs are not included.



A composite system that utilizes both hydraulic and pneumatic humidification
AirHYBRID

In gravure printing and laminating operations, this composite system is optimal; the hydraulic humidification establishes the base level of humidity, while the pneumatic system provides localized humidification where needed, such as at the ink unit, and the unwinding and winding sections.

Contact us for details





CASE 01

Sheet-fed Printing



The system effectively boosts the humidity levels throughout a printing factory, particularly focusing on the feeder and delivery sections, which are the primary sources of static electricity.



Static electricity tends to accumulate in the feeder and delivery sections, where frequent paper friction occurs. Maintaining an appropriate humidity level suppresses the generation of static electricity at these spots. This not only facilitates smoother handling of paper but also streamlines the printing processes, enhances quality, and prevents paper expansion, shrinkage, or curling.

Benefits

- Reducing double feeding at the feeder section.
- Reducing disordered sheet stacks at the delivery unit.
- Reducing time spent on print registration.
- Enhancing processing efficiency.

Customer Testimonials

Every winter, we struggled with the pervasive dryness. But ever since we doubled down on humidity control, we've seen a marked decrease in printing glitches like misalignment and paper jams, which has massively boosted both the quality of our prints and the efficiency of our workflow. The drop in printer downtime not only means less overtime for our team but also stress-free humidification—no worries about soggy paper or presses. It's been a huge relief for all of us.



Our Clients

TOPPAN Inc. | Dai Nippon Printing | KOMORI Corporation | National Printing Bureau | TOYO SHIGYO | TOSHO PRINTING | KOHHOKU | SUN ART | Mochizuki, and more



CASE 02

Gravure Printing



Don't let local exhaust ventilation systems defeat you!
Our innovative "Hybrid Humidification" solution contributes to safety, quality, productivity, and energy savings all at once.



We've even satisfied customers who were skeptical about humidifying due to local exhaust ventilation, proving that our system truly makes a difference. The secret lies in our "Hybrid Humidification" that masterfully utilizes both the delicate yet powerful pneumatic humidification and the energy-saving hydraulic humidification. By efficiently and reliably humidifying spots where dryness and static electricity are issues, we commit to enhancing all: safety, quality, productivity, and energy savings.

Benefits

- Preventing sparks at ink pans and ink rolls.
- Reducing airborne particles around ink units.
- Suppressing static charge on films and sheets.
- Suppressing print quality failures*.

*Feathers, streaks, etc.

Customer Testimonials

A robust ventilation system is absolutely essential for us to clear the air of the toxic solvents released by our gravure inks. We relied on steam boiler humidifiers to keep static at bay, but they were energy hogs—balancing humidity with our intense ventilation needs was a constant battle.

Your recommended hybrid humidification system was the ultimate solution; it maintains our ideal humidity and cuts down on our energy bills. It's completely transformed our operations.



Our Clients

TOPPAN Inc. | Dai Nippon Printing | MARUTAKA | NISSHA | Chiyoda Gravure | Fukusuke | HOSOKAWA YOKO, and more

Prevent Static Electricity & Dryness Related Issues

CASE 03

Offset Rotary Printing



In offset rotary printing, where quick turnarounds are demanded, maintaining stable production is crucial. Our humidity control solutions help mitigate risks and support increased production efficiency.

Brief, yet frequent stops can lead to significant increases in costs. Dry Fog humidification can quickly, reliably, and evenly raise humidity levels throughout the factory. This enhances the stability and efficiency of the entire process and also contributes to improved print quality.

Benefits

- Reducing press stoppages leads to increased productivity.
- Maximizing rotational speed improves productivity.
- Minimizing disorganized sheet stack at the sheeter section.
- Enhancing stability in thin paper printing.

Our Clients / TOPPAN Inc. | Dai Nippon Printing | BENIYA OFFSET | TOYO SHIGYO | TOSHO PRINTING | Kyodo Printing, and more



BENIYA OFFSET Co., Ltd.

Prevent Static Electricity & Dryness Related Issues

CASE 04

Screen Printing



Numerous factors, such as material friction and peeling, contribute to the generation of static electricity. The Dry Fog humidification system offers a safe and reliable solution, well-suited for even small spaces.

Appropriate humidity control prevents process issues, including material shrinkage, distortion, ink spatter, and uneven transfer caused by static electricity. Naturally, with Dry Fog, there's no concern about wetting.

Benefits

- Suppressing screen clogging.
- Reducing airborne dust.
- Preventing static electricity-induced whiskers.
- Reducing material shrinkage and distortion.

Our Clients / EISHIN-ART | ASAHI PRINTING | KOKUYO, and more



EISHIN-ART CORPORATION

Prevent Static Electricity & Dryness Related Issues

CASE **05**

Packaging Printing



Packaging that defines a brand's first impression requires optimal humidity control to ensure consistent quality and stable production.

Cardstock, as well as paper with different materials or finishes on each side, are susceptible to deformation due to changes in humidity. Let our humidification system, which ensures uniform humidity levels, help you preserve print quality and ensure stable production.

Benefits

- Mitigating paper expansion and shrinkage, and also diminishing curling.
- Shortening registration time.
- Reducing complaints about cracking along score lines.
- Improving punching accuracy.

Our Clients / Dai Nippon Printing | TOPPAN Inc. | CHUO KAGAKU | Seiko Art | OJI PACKAGING, and more

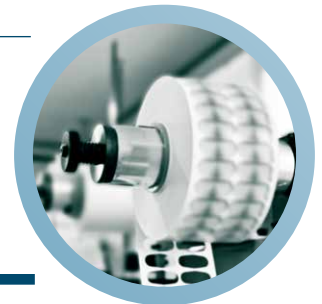


Seiko Art Printing Co., Ltd.

Prevent Static Electricity & Dryness Related Issues

CASE **06**

Label Printing



A wide range of materials easily causes static charge through friction and peeling, which in turn generates static electricity, making it essential to take preventive measures.

Similar to the packaging printing, material deformation is also common in this worksite due to variations in paper materials and finishes. Because it involves many friction and peeling processes, it is essential to create an environment that suppresses static electricity from arising in the first place.

Benefits

- Suppressing static charge on films and sheets.
- Alleviating static buildup caused by peeling at the unwinding section.
- Mitigating label expansion and shrinkage, and also diminishing curling.
- Reducing airborne dust.

Our Clients / TOPPAN Infomedia | OSAKA SEALING | Dai Nippon Printing | Kyodo Printing | Chiyoda Gravure, and more



Prevent Static Electricity & Dryness Related Issues

CASE 07

Business Form Printing



As printing machinery precision advances, positioning becomes more stringent. Instances are arising where paper expansion, shrinkage, and deformation become bottlenecks for stable production.

Sophisticated print quality and the demand for flexible and rapid customization is the definition of business form printing. Humidity control using Dry Fog elevates both quality and production efficiency to new heights.

Benefits

- Suppressing misalignment of perforations and punch holes.
- Reducing scatter of punch-out waste and paper dust.
- Suppressing static charge on films and sheets.
- Enhancing stability in thin paper printing.

Our Clients / TOPPAN Inc. | Dai Nippon Printing | TOYO SHIGYO | Kohhoku | TOPPAN Edge, and more

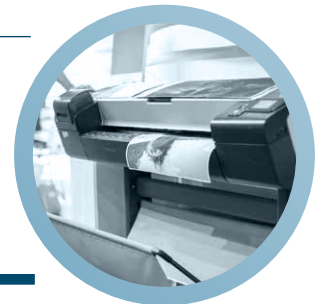


Kohhoku Printing Co., Ltd.

Prevent Static Electricity & Dryness Related Issues

CASE 08

Digital Printing



In a high-mix, low-volume production where speed is crucial, the first step is to create a humidity environment where problems are less likely to occur.

Maintaining an optimal humidity environment, unaffected by external conditions, makes it possible to preserve consistent print quality across various materials. Please consult with us, renowned for our extensive track record in all printing techniques.

Benefits

- Reducing double feeding at the feeder section.
- Reducing disordered sheet stacks at the delivery unit.
- Suppressing ink head drying.
- Increasing processing efficiency.

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MAHITO Co., Ltd.



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<https://www.kirinoikeuchi.co.jp/eng/technology/ct52.php>

Sheet-Fed Offset Printing Gravure printing



How to prevent fires caused by static electricity sparks in Sheet-Fed Offset Printing Processes with Dry Fog Humidifier AKIMist. "E" Jul. 14, 2022



Problems at a sheet-fed offset printing plant in wintertime
A printing plant with a wide range of products from school yearbooks to business cards, was facing

How to prevent fires caused by static electricity sparks in gravure printing factories Jul. 14, 2022



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