





PRINTING

INCREASE PRINTING PRODUCTIVITY WITH JAPANESE HUMIDIFICATION TECHNOLOGY

CONTROL THE HUMIDITY LEVEL WITH PERFECTION

PREVENT PRINTING ISSUES CAUSED BY STATIC ELECTRICITY AND DUST

PROBLEMS IN PRINTING ROOMS DUE TO LACK OF HUMIDITY CONTROL



EFFECTS OF AN UN-CONTROLLED HUMIDITY LEVEL

- STATIC ELECTRICITY
- DOUBLE FEEDING
- INK REPULSION
- DUST ATTRACTION
- RUNNABILITY PROBLEMS
- MISREGISTER ISSUES

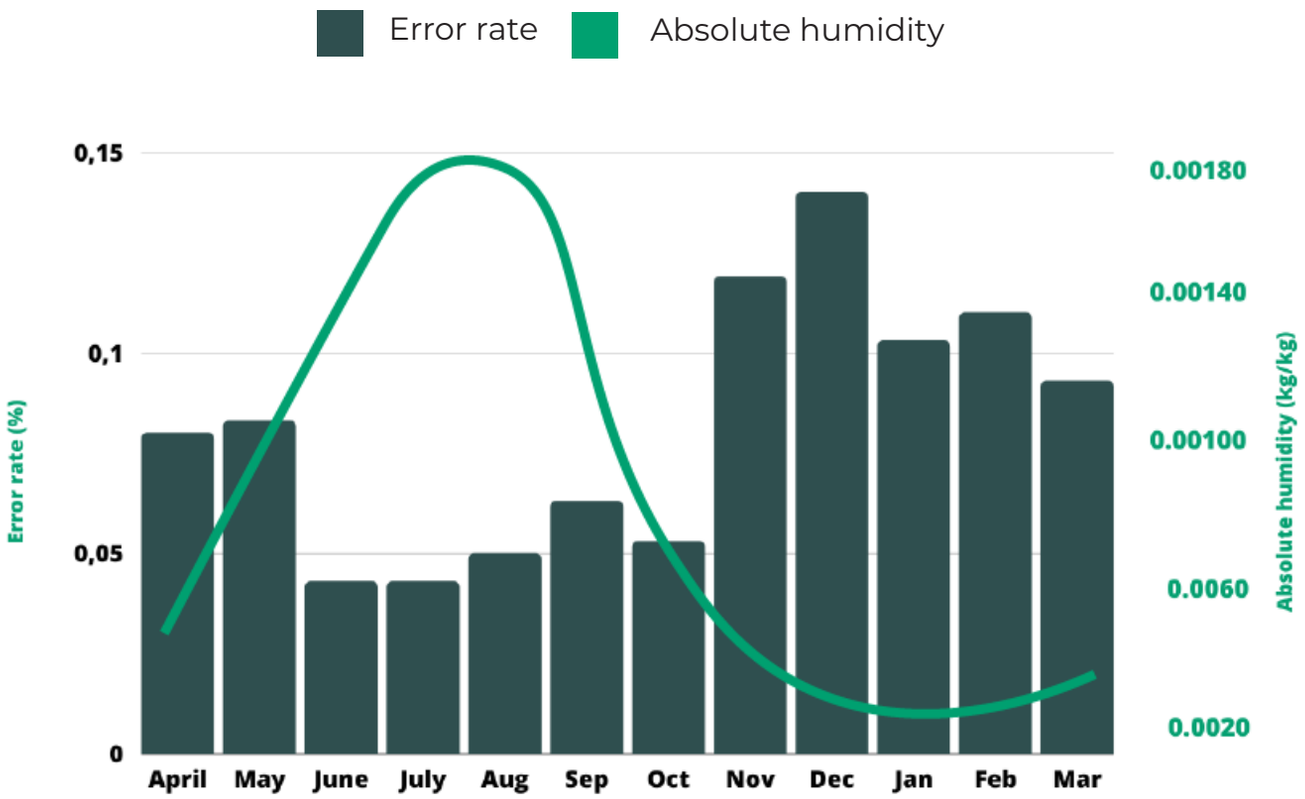
THIS IS IKEUCHI

MADE IN JAPAN
All our products are developed and produced in Japan, which ensures our customers of the highest standard in quality.

SINCE 1954:
Ikeuchi has more than 70 years of experience in humidification technology and serving the printing industry.

CLOSE TO YOU:
Ikeuchi Europe is located in the Netherlands, from where we can serve all of Europe.

MAINTAINING THE OPTIMAL HUMIDITY LEVEL IN A PRESSROOM - ALL YEAR ROUND



OPTIMAL HUMIDITY LEVEL

The optimal humidity level in a pressroom is between 44% to 55% relative humidity. With precise humidification control, a consistent relative humidity level can be maintained year-round, significantly reducing printing defects, paper deformation, and more.

WORSE DURING WINTERTIME

Static electricity is especially a problem during winter-time where the humidity level tends to drop drastically. As can be seen in the graph above, as the absolute humidity level decreases, the error rate increases. This is because we tend to increase the indoor temperature during winter and as the indoor temperature increases, the air's capacity to hold moisture also increases, leading to lower relative humidity. Conversely, lower temperatures reduce the air's moisture-holding capacity, resulting in higher relative humidity.

WHY STABLE HUMIDITY MATTERS

Maintaining a stable humidity level throughout the year creates more consistent conditions in the pressroom. When the air becomes too dry, it can cause several issues. Keeping relative humidity within the recommended range helps stabilize the paper, reduce static electricity, and minimize production interruptions. This results in fewer printing defects, less waste, and a more reliable printing process.

PRINTING ROOM PROBLEMS DUE TO LACK OF HUMIDITY

DOUBLE FEEDING

Static electricity can cause double feeding because charged paper sheets stick together. When the feeding system picks up one sheet, the electrostatic attraction can cause a second sheet to be pulled along with it, resulting in two sheets entering the press at the same time.

DIMENSIONAL INSTABILITY

Dimensional instability occurs when paper absorbs or loses moisture as humidity changes. In a dry pressroom, paper loses moisture and can shrink or change shape, causing problems with registration, alignment, and consistent print dimensions.

RUNNABILITY PROBLEMS

Runnability problems occur when low humidity affects the way paper moves through the printing press. Dry paper is more likely to curl, stick together, or feed unevenly, which can cause misfeeds, paper jams, and production interruptions.

PAPER SIZING INACCURACY

Paper size inaccuracy occurs when changes in humidity cause paper to expand or shrink. When the air is too dry, paper loses moisture and contracts, resulting in incorrect sheet dimensions and inconsistencies in the final printed product.



PRINTING ROOM PROBLEMS DUE TO LACK OF HUMIDITY

INK REPULSION

Ink repulsion can occur when static electricity builds up on the paper or printing surface. The electrical charge can interfere with the proper transfer and distribution of ink, causing uneven ink coverage, poor adhesion, and inconsistencies in print quality.

DUST ATTRACTION

Dust attraction occurs when static electricity causes dust and small particles to cling to the paper. These particles can contaminate the printing surface, leading to print defects, uneven ink transfer, and reduced print quality.

MISREGISTER ISSUES

Misregister issues can occur when changes in humidity cause paper to expand, shrink, or distort. This dimensional movement can prevent different colors and print elements from aligning correctly, resulting in blurred edges, color shifts, and inaccurate print registration.

OPERATOR SHOCKS

Operator shocks can occur when static electricity builds up on people, paper, or printing equipment. When an operator touches a conductive surface, the accumulated charge can discharge suddenly, causing an uncomfortable or painful electric shock.



10 BENEFITS OF AKIMIST DRY FOG HUMIDIFICATION



1 HUMIDITY CONTROL

AKIMist controls the humidity level to perfection with a sensor system. The system will automatically turn on and off depending on the humidity level.

2 SPOT HUMIDIFICATION

AKIMist can be used for spot humidification and be placed directly by the source of issue, such as the paper roll. This reduces the price significantly as only a few units may be needed.

3 ENERGY EFFICIENT

AKIMist is extremely energy-efficient and uses up to 80% less energy than conventional humidification systems. In addition, AKIMist has a cooling effect which reduces the energy needed for air-conditioning by 20%.

4 NON-WETTING

Due to the unique impinging technology, AKIMist sprays non-wetting droplets around 7.5 µm. The droplets are so small that they will bounce back without bursting on any surface.

5 COMPACT

AKIMist is very compact. Like the size of a 5 inch smartphone. This makes it easy to fit into tight factory spaces.

10 BENEFITS OF AKIMIST DRY FOG HUMIDIFICATION

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DUST SUPPRESSION

Due to the small size droplets, which are as small as dust particles, these droplets can suppress the dust particles. In addition, the increased humidity also helps to suppress dust.

7

COOLING EFFECT

AKIMist cools the air around 2°C while controlling humidity levels. It reduces the energy used for air-conditioning by 20%, thereby saving costs.



8

LITTLE MAINTENANCE

AKIMist requires very little maintenance compared to other humidification equipment. In addition, it is very easy to maintain as it is installed inside the factory and suspended from the ceiling or mounted on the wall.

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EASY TO INSTALL

AKIMist is easy to install and can be fitted into any current HVAC design. AKIMist can be installed using a wall or ceiling fitting, or even supplied as a portable option.

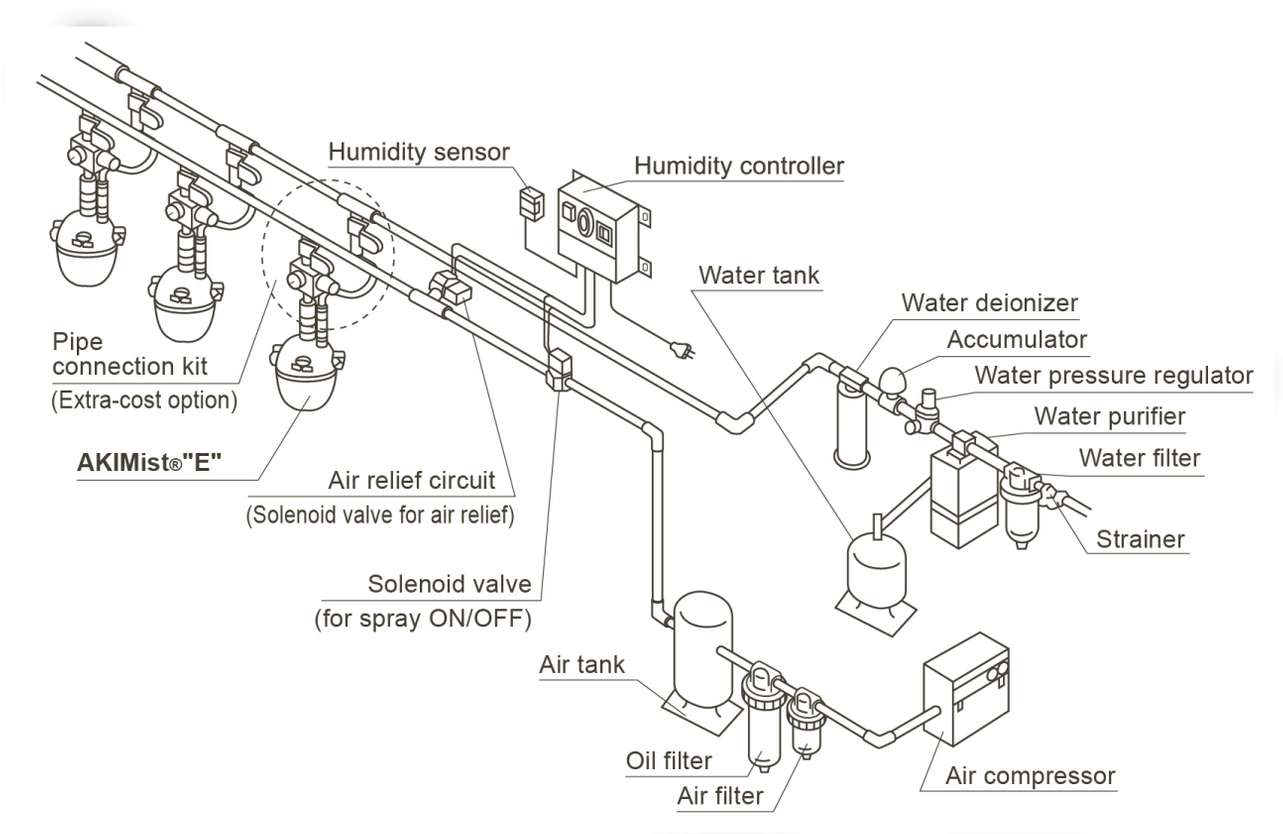
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HEALTH BENEFIT

Maintaining a relative humidity level of around 50% will reduce the risk of viruses from spreading between employees. This increases the well-being of the employees and increases productivity.

INSTALLATION SETUP OF AKIMIST AIR HUMIDIFIER

As can be seen below, the system setup includes several units of AKIMist humidifiers, depending on the size of the building and humidity targets. In addition, the system consists of a humidity sensor which will turn the system on and off depending on the humidity level. This reduces waste of unneccesary energy like we know from steam based humidification systems. The system is also connected to compressed air as well as a ROI water system.



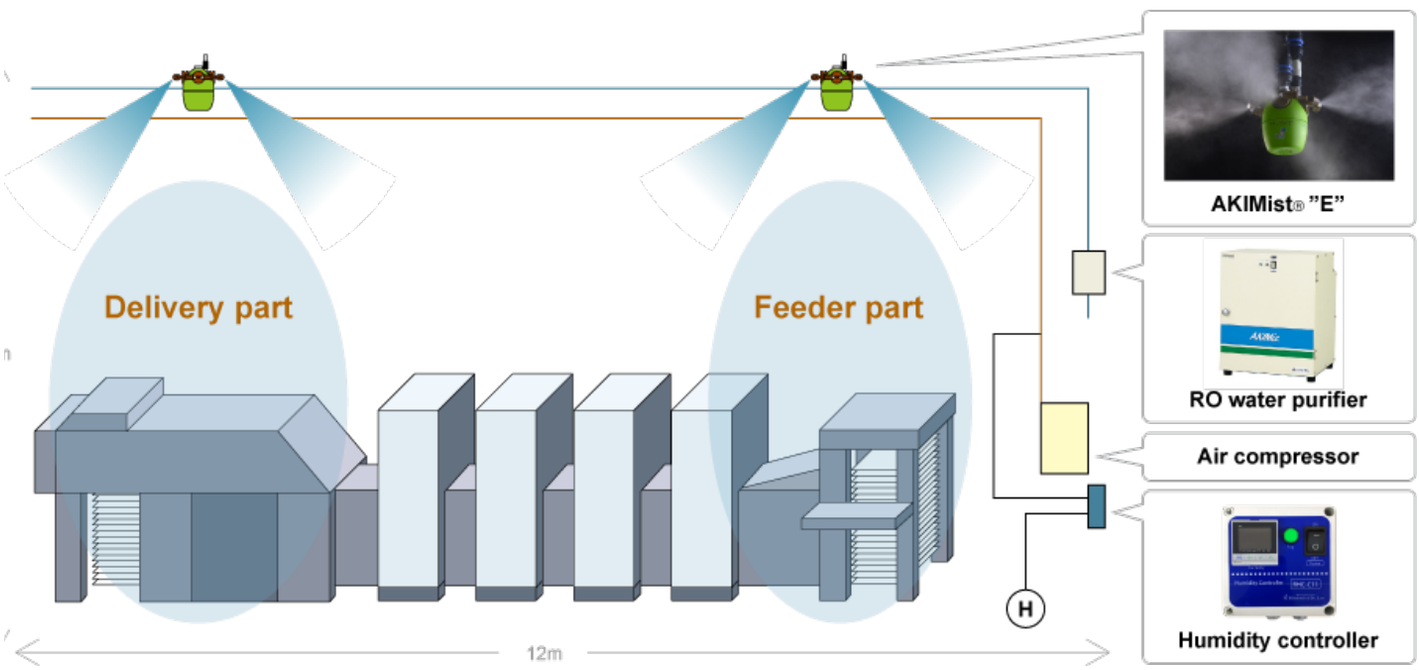
STANDARD INSTALLATION

We offer tailor-made solutions.

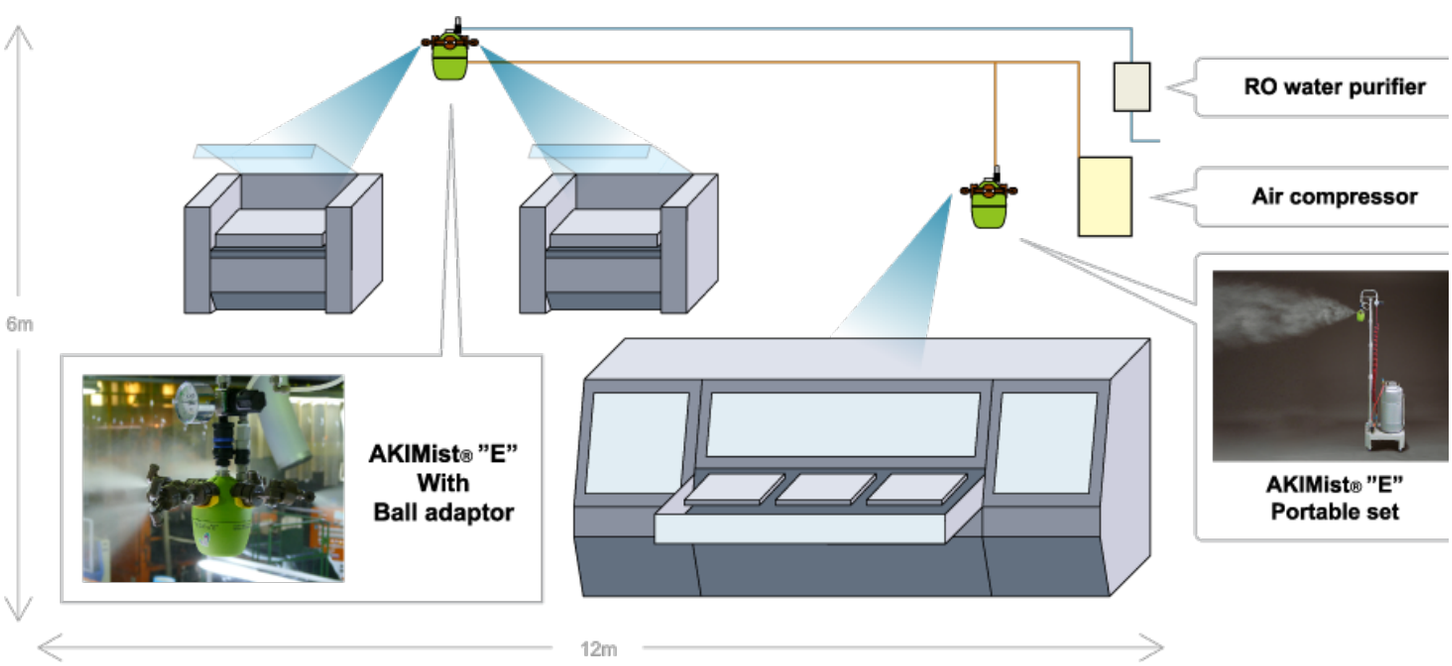
Before installation of an AKIMist® system, we analyze the customer's needs and site to create the ideal environment.

Humidification system planning and layout are designed to meet each and every customer's requirements to achieve the desired condition.

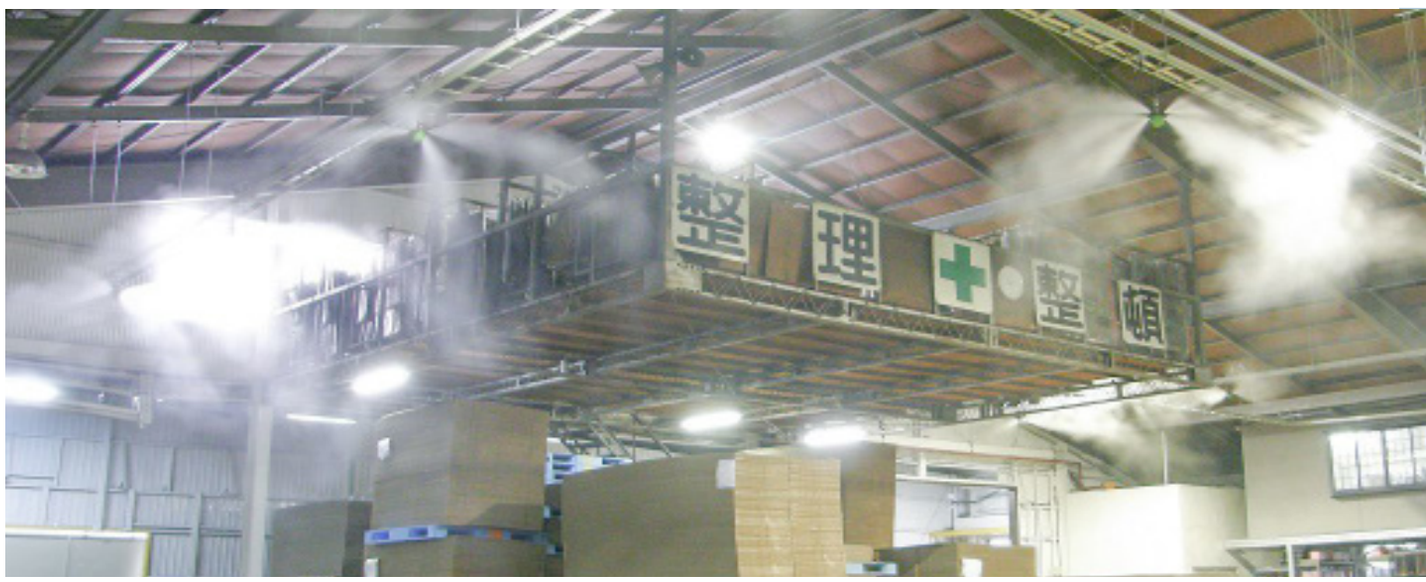
INSTALLATION EXAMPLE: SHEET-FED OFFSET PRINTING

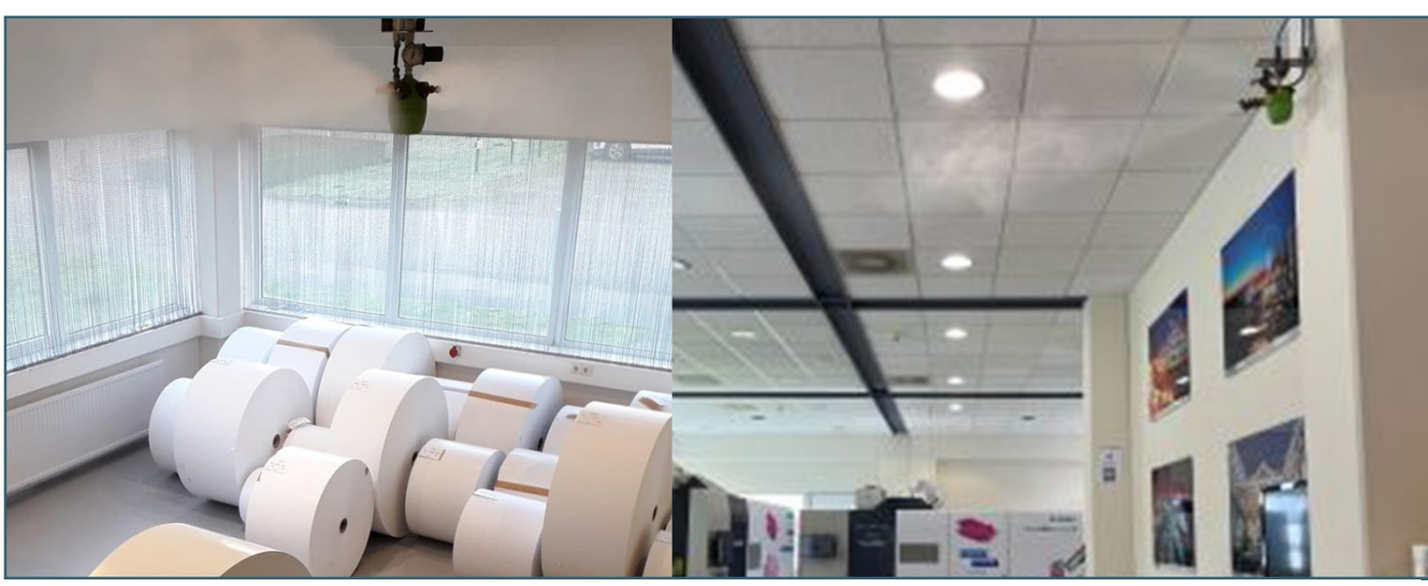


INSTALLATION EXAMPLE: SCREEN PRINTING



CASE STUDIES







Failure decrease by 53% at box manufacturer

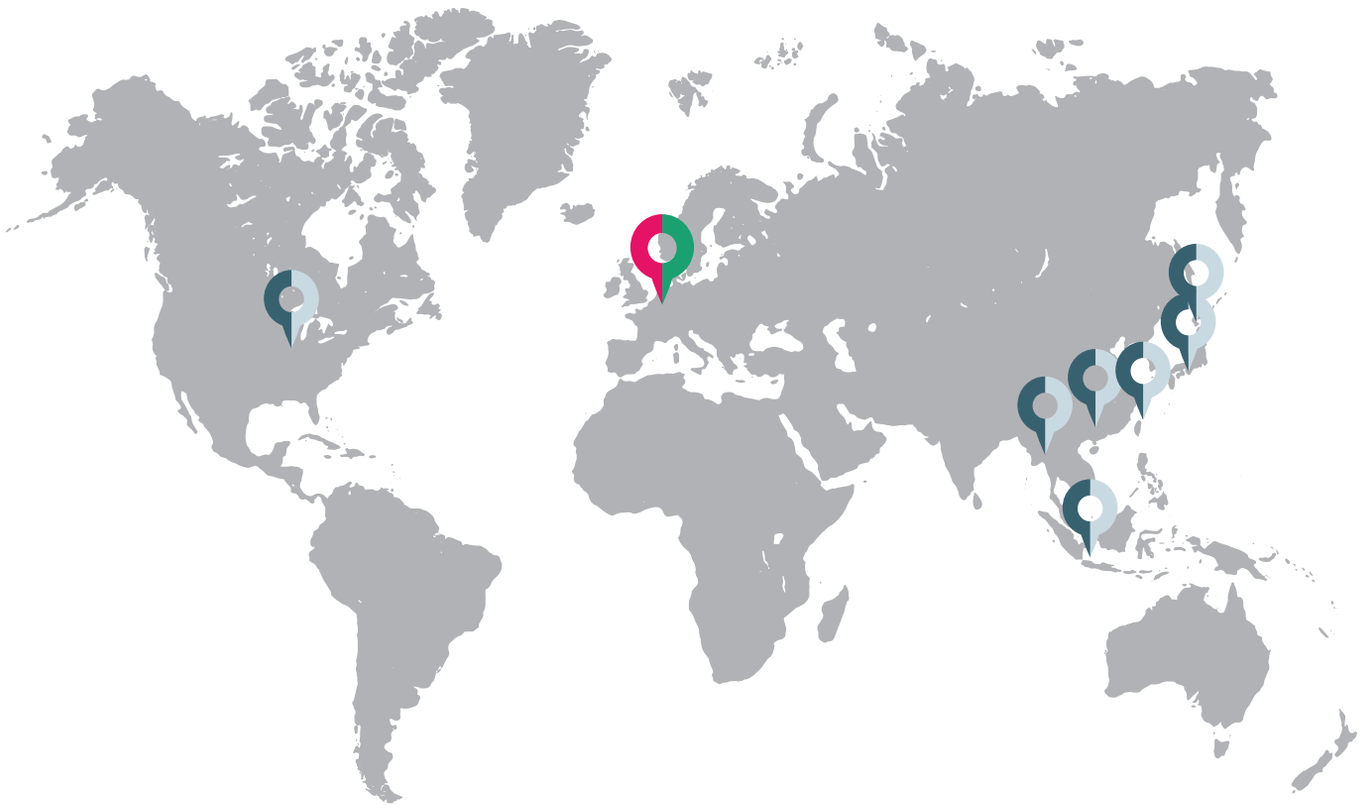
A corrugated box manufacturer was experiencing issues with box crackings and pasting failures during the production process. After installing AKIMist® dry fog humidification across the manufacturing area, they could maintain a moisture retention rate between 6 to 8%. As a result, they managed to reduce corrugated cardboard cracks by 80%, paisting failures by 77%, and total failures by 53%.

Humidity control at SCREEN technology hub

SCREEN was looking for a humidification solution which could prevent ESD related issues, the drying out of ink, and prevent the paper from being affected by fluctuations in humidity. After installing three units of AKIMist® “E” in their solutions and technology center, SCREEN no longer experiences any issues related to humidity. SCREEN also installed a sensor which continually measures the humidity level in the room. Whenever the humidity level falls below the recommended level, the AKIMist units will automatically start to spray dry fog.

Spot humidification at Premier Print Group

Premier Print Group only had around 20% humidity in the pressroom, while the recommended setting is at least 44%. Due to this issue, they were only able to run at speeds of 10,500 on most stocks and productivity was too low. Since the target area was 20,000 m³, Ikeuchi suggested “Spot humidification” to save costs. Premier Print Group ended up installing 4 AKIMist units for spot humidification. The result was a significant decrease in static electricity which led to an increase in productivity. Premier Print Group was also pleased to see that the 'dry fog' never caused wetting, dripping or puddles on the floor.



Ikeuchi is a Japanese company with branches all over the world. It was founded in 1954 in Osaka and has since then expanded across Asia, North America and Europe.

For inquiries / information requests / quotations related to this product, please contact us

Ikeuchi Europe
いけうち The fog engineers

"Taking the path less traveled"

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