

Case Study of AKIMist®

Case-1

Improves quality and productivity in sheet-fed printing

(Toyo Shigyo Printing Co. Ltd.,)

KEY POINT

Reducing inaccuracies in sizing and poor registration, which necessitates reprints.

Reducing double feeding at the feeder and substandard stacking at delivery unit.

Toyo Shigyo Printing Co. prints a range of products from school albums to business cards. Using a sheet-fed printing press was a problem as humidity levels generally become low in the wintertime. Low humidity levels make it difficult for accurate and reliable printing, because not only does the static created lead to problems such as double feeding, machine malfunctions, and thus press shutdowns, but also paper sizing can become inaccurate as well. Because of this, the company's productivity was very bad during the winter, thinking it the only way to avoid these problems brought on by low humidity. However, some deadlines could not be postponed, and Toyo Shigyo could barely meet them on their reduced schedule and barely compensated for it by changing procedures on the fly and increasing overtime labor.

When printing double-sided pages, they would normally print one side of the paper one day and the other side the next. Low humidity led to changes in paper size overnight, which ultimately led to an inferior end product. As a result, the plant had to print both sides on the same day whenever possible. In addition, in order to curb problems brought on by static electricity (which was especially a problem where large quantities of thin sheets were concerned) the plant was forced to enact special procedures, such as reducing the printing speed, or juggling the job schedule by moving up jobs not as affected by static electricity and putting off tougher jobs until humidity levels increased.



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The company's staff complained, saying that operators are able to somehow work out the irregularities in the delivery unit, but that if the paper is stuck at the feeder, so were they.

After purchasing the AirAKI® system, the plant was able to greatly reduce sudden drops in humidity during the winter, thus curbing the problems caused by static electricity, and double feeding and paper curling problems were resolved. The printing process was able to run more smoothly and printing jobs could be run properly on schedule, reducing the need for sudden production schedule changes and overtime work. Furthermore flapping and folding caused by static electricity also saw great reductions, and the time it took to load paper into the sheet-fed printer was cut by about 10%. In the winter, plants without humidification become quite dry due to the heating system. Dryness becomes even more irritating because of the ink vapors, paper particles, and powders. As one might imagine, this in itself becomes an issue concerning the respiratory health of the people who work in these kinds of plants. Thanks to the humidification provided by the AirAKI® system, the number of work absences due to illness was cut nearly in half at Toyo Shigyo Printing Co. Ltd, which also lent itself to the reduction of sudden schedule changes and overtime work.



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Case-2

Eliminates downtime in newspaper rotary press

(Yomiuri Newspaper Tosho Printing, Kyoto Plant)

KEY POINT

Prevents paper feeding troubles due to drying of paster component.

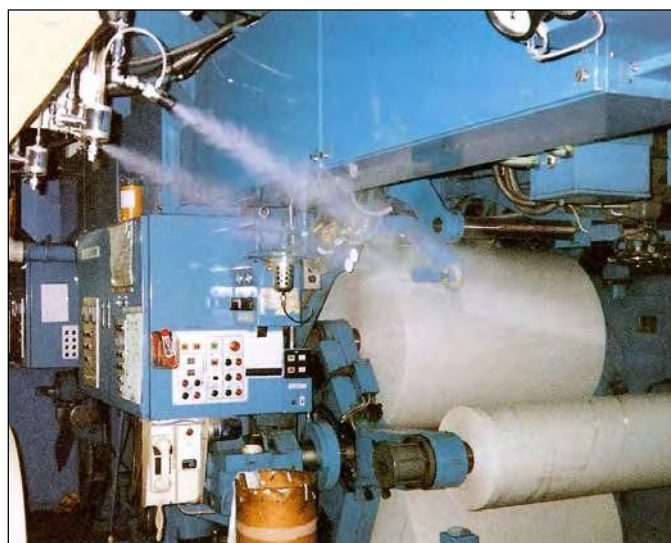
Prevents web tearing by retaining moisture content, thereby maintaining paper's strength.

The plants print the *Yomiuri Newspaper*, which is the most popular newspaper, having the highest circulation in Japan. The most important requirement is to complete printing at maximum speed without any stoppages. Needless to say, printing has moved from monochrome to color and quality has improved, but these advances are meaningless if the evening paper doesn't arrive until the following day. Every step must be taken to ensure that no problems occur in the printing process.

One of the causes of press stoppages is trouble with paper feed continuity. Newspaper rotary presses do not stop when a roll runs out at the feeder. Without stopping the press, the next roll is then connected by the paster using a piece of double-sided tape, which allows the press to print continuously. One problem with this system, however, is the weakening of the paster's tape adhesion due to dryness, which leads problems in paper connectivity when the two paper rolls do not firmly stick to each other.

Japanese newspaper printing presses are of the "tower" type, with the supply paper feeding from a basement where there is a paper storage room. On the next floor up, the printing press takes in feed paper from below and prints out from the top. Because of the vertical system, if problems in paper connectivity arise, there is a significant amount of time lost in getting the press ready again. What's more, the printing done during this resetting cannot be sold, and is thrown out as waste.

AKIMist® was installed to prevent this, and dry fog was sprayed directly using Ikeuchi's unique spot humidification at the paper feed roll to counteract dryness at the paster area. As a result, they prevented paper connectivity trouble and achieved zero machine stoppage.



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Case-3

Prevents catching fire by static-electricity in gravure printing

(Nissha Printing Co. Ltd., Kameoka Plant)

KEY POINT

Humidity releases the static charge from plastic film and prevents static spark and small fires. AKIMist® can keep humidity between roll units with the unique solution, 'Spot Humidification'.

Nitec Industries prints transfer film for printing on mobile phones and computers. It is a subsidiary of Nissha Printing Co. Ltd. Each winter, static electricity buildup near the ink units leads to intermittent problems with sparks and small fires. Fortunately, there had not yet been any major fires, but should such a fire break out and wreak havoc on the plants' seven presses, such a fire could be disastrous for the company. This threat drew the attention of the local fire department and they were pressed to take measures to prevent such a risk from becoming reality.

In order to ease the fire department's concerns, Nitec demonstrated the AKIMist® system to the firefighters. It was set up with two nozzles at each ink unit space and the increase in humidity and reduction of static electricity were measured. As the relative humidity increased from 35% to 50%, the static electric charge was reduced from 20kV to 4kV, or 1/5 of its previous value. The firefighters, now convinced that this would aptly curb the danger of a large fire breaking out, strongly commended the results. Their reaction and relief moved the company to purchase the system, and the risk of fire was greatly suppressed.



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