



Dry Facts

...from Arctic India Sales

October-November-December 1987

Vol. VII No. 4

LOOKING AHEAD

As we reach the year end, we look back with feelings of pride and pleasure at the kaleidoscope of events in the year gone by: The International Meet, a joint venture agreement with Delair Netherlands, Trade shows at Ashrae New York, Moscow and India, Seminars on Plastics, Dehumidification and Heat Recovery, Symposium in China, the first issue of Bryworld and lots

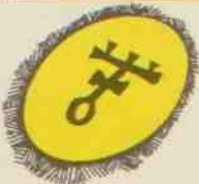


more. Today we look forward to yet another fruitful year.

Our strengths have been the support received from you. As the President of Bry-Air Inc. once remarked "Companies are good, but friends are better".

Hence, thanking all our friends for their support, we, at Arctic India Sales, wish you a Happy and Prosperous New Year!

SPOTLIGHT ON PLASTICS



Plastics was the main theme of the India International Trade Fair held in Delhi between November 14-29.

Arctic India Sales exhibited the Bry-Air

Range of Plastics Equipment which included a plastic dryer, a loader and hopper, capability of installing plant wide pneumatic conveying systems and mold dehumidification systems.

A very enthusiastic response to the indigenous availability of this product indicates the readiness of the industry to upgrade the quality of production to world standards through proper resin drying.

Arctic India Sales also introduced the Delair range of Compressed Air Dryers, which find a wide application in Plastics as well as the general industry.

The introduction of the compressed air dryers range, through a world class technology, complements the air drying capabilities of the engineers at Arctic India Sales.



AT&T THAILAND OPTS FOR BRY-AIR HEAT RECOVERY AND DEHUMIDIFICATION EQUIPMENT



AT & T, one of the largest manufacturers of electronic components worldwide, recently shifted their plant to Thailand for economics and cost efficiency considerations.

For their new plant, they required both dehumidification and heat recovery systems. Bry-Air India bid for the job against competition and won the contract for application support and on performance criteria.

Dehumidification System

Dehumidifier Model MVB-75E is to be supplied to maintain 40% RH at 22°C in the production area including a highly sophisticated testing zone.

Heat Recovery System

Highly conscious of energy costs a Bry-Air Heat Recovery System of the value of 45000 US \$ has been ordered for recovering energy from the exhaust air, of an air cooled condenser, and reheating the air, coming at low temperature after the AHU. In this way the electrical re-heat required is totally eliminated. Low temperature heat recovery is also Bry-Air's speciality.

Efficient use of energy management is rapidly becoming one of the most important criteria for increasing overall profitability, in companies worldwide.

WHICH IS MORE CRITICAL?

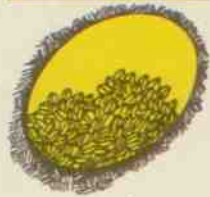
Plastic quality through proper drying?
Or proper drying through a quality dryer?



Both, reiterated Bry-Air personnel through a series of seminars on 'New Technologies for the Plastic Industry'. The seminars were presented by Mr. Lynn Beach, Vice President, Bry-Air U.S.A. in Delhi, Calcutta, Madras, Banglore and Bombay in October. The slide show explained why proper drying of resins is important for quality molding and how Bry-Air Plastic Dryers based on the principle of dehumidification ensure proper drying. Bry-Air loaders, hoppers, and pneumatic conveying systems for efficient conveying of pelletized material, were also introduced. Bry-Air mold dehumidification systems were also introduced and its application explained graphically.

The Bry-Air range of plastics equipment is being extensively used in the U.S. for a simple reason 'Everything Bry-Air makes, makes plastics handling easier'.

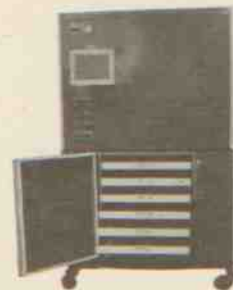
BRY-AIR SEED DRYERS FOR VIETNAM AND AFGHANISTAN



Drying and storage are Primary consideration in Seed dryers and storage of seeds are *temperature* and *humidity control*. Seed dryers have been specially designed by Bry-Air in consultation with seed technologists. These dryers optimize on the temperature and humidity combination, utilising a unique air distribution pattern to achieve a speedier drying rate at low temperatures.

Three numbers seed dryers, incorporating these unique concepts have been supplied to FAO in Afghanistan, Vietnam and Bangladesh.

The equipment is being used extensively by state and national seed bodies in India and U.S.A.



BRY-AIR CROSSES THE WALL OF CHINA



Bry-Air India, was asked to present a seminar on "Importance of Chemical Dehumidification in the Pharmaceutical Industry" on November 24th and 25th, in Beijing, China.

The symposium organized by the State Pharmaceutical Administration of China was attended by thirty engineers representing various pharmaceutical plants from different provinces of China.

This symposium was an eye opener for all the engineers to understand that solution to achieving desired Relative Humidity conditions in various production, storage and packaging areas in pharma industry lies in using chemical dehumidification.

Bry-Air experts had better start mastering the Chinese language quickly.

SEED TECHNOLOGISTS SEE FOR THEMSELVES

A number of seed technologists, representing national and state seed bodies, as part of their training programme visited the Bry-Air factory to see the Bry-Air dehumidifying Seed Dryers. A plant tour and a slide show on fundamentals of dehumidification and its application to the seed drying and storage, generated a lot of interest in this world class product being produced indigenously.

When Moisture is Torture!!!

DEHUMIDIFICATION IN THE PRINTING INDUSTRY.



Paper, the principle material used in printing, is hygroscopic and very sensitive to variations in the humidity of the surrounding air. Problems caused by expansion and contraction of paper in the printing are all related to high humidity conditions.

Various areas in the printing process require humidity and temperature control to produce perfect results.

Platemaking

Humidity and temperature control are important in making lithographic and callotype plates, photoengravings and gravure plates and cylinders. The moisture content and temperature of the plates effect the sensitivity of the coatings. The coatings increase in light sensitivity with increasing relative humidity and temperature, requiring adjustments in light intensity or length of exposure to give uniformity.

Maintaining constant dry bulb temperature and relative humidity in platemaking room provides a plate at a known control point.

A condition of 24 to 27°C and a RH of 45% is optimum. Additionally, special attention should be given to air cleanliness and ventilation in platemaking to eliminate chemical fumes and dust errors in the plates.

Printing

The three basic methods of printing are as follows:

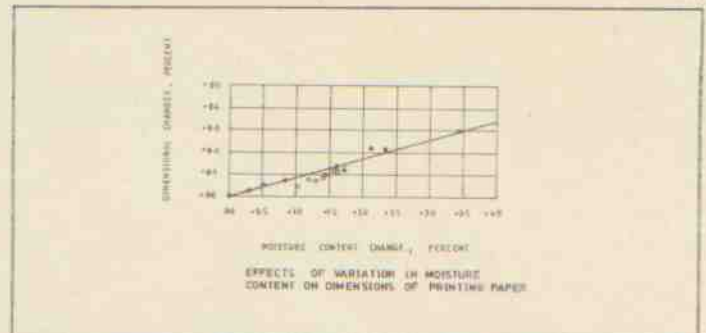
- ★ Letterpress: (relief printing): ink is applied to a raised surface that does the printing.
- ★ Lithography: (planographic printing): the inked surface that does the printing is neither in relief or recessed.
- ★ Gravure (intalgis printing): the inked areas are recessed below the surface.

For letterpress printing, airconditioning alone minimizes problems caused by static electricity, ink mist and expansion or contractions of paper during printing.

In the **offset printing** process the pressroom for sheet multicolour printing has more exacting humidity requirements than other printing processes. The paper must remain flat with constant dimensions during multicolour printing in which the paper may make up to six or more passes through the press over a period of a week or more. If the paper does not have the right moisture content at the start, or if there are significant changes in atmospheric humidity during the process, the

paper will not retain its dimensions and flatness and misregister will result. In many cases of colour printing, a register accuracy of .005 inches (.13 mm) is required.

The figure given below brings out the necessity of close control of relative humidity in the air to achieve this result.



Recommended temperature and RH conditions are 25 to 27°C and 43 to 47% as ideal conditions.

Drying of ink is also affected by temperature and humidity, so uniform results and standardized procedures are difficult to obtain without control of the atmospheric conditions. Printing inks must dry rapidly to prevent offsetting and smearing. High relative humidity and high moisture content of paper tend to prevent ink penetration, and more ink remains on the surface than can be oxidized. This affects the drying time, intensity of colour and uniformity of ink on the surface. Relative humidity below 60% is favourable for drying at a comfortable temperature.

Expansion, contraction and distortion in sheetfed gravure printing, as in offset printing should be prevented because of the importance of correct register. The paper need not be in equilibrium with air at a relative humidity higher than that of the press room, because no moisture is added to the paper in the printing process. The temperature and humidity control is exacting as in offset printing. The relative humidity should be 45 to 50%.

Paper Storage and Shipping

Paper is normally received at the printing plant in moisture proof wrappers. However, once the paper is exposed to temperatures substantially below the room temperature, it rapidly absorbs moisture from the air with resulting distortion.

Another interesting application of humidity control is for 'newsprint transportation'. When the newsprint is imported from paper producing countries such as Finland and Sweden by sea, temperature and humidity levels change frequently at sea during transportation. This leads to condensation on the massive paper reels, hence paper quality is affected. The solution lies in blowing dry air into the hold of the cargo ship keeping the cargo dry.

Adsorption dehumidifying equipment manufactured by Bry-Air for independent humidity control with provisions for cooling provide an ideal solution to handle the moisture menace in the printing industry.

Courtesy: Ashrac Book of Fundamentals

delair

HEATLESS ADSORPTION DRYERS — DC SERIES



DRY COMPRESSED AIR INCREASES PROFITS

Rust and pipe scale deposits in steel pipes, increased resistance to flow, malfunctioning of pressure control equipment, corrosion in electromagnetic valves, solidification of media in pneumatic conveying systems, bubbling or orange peel effect in paint spraying are all consequences of water in the compressed air system. It not only endangers your delivery dates but quickly soaks up profits!

Air drawn into the compressor will, depending upon the relative humidity, contain 60% to 80% of water vapour. Under compression, some of this converts to water and can be removed by line filters. However, as the temperature drops, water vapour will re-appear as condensation.

Water vapour can only be economically removed by two methods: one is by cooling the air; the other more efficient method is by adsorption. The Delair range comprises of both refrigeration dryers and adsorption dryers.

Refrigeration dryers are used for application requiring air with pressure dewpoints to +2°C.

Adsorption dryers provide a much lower pressure dewpoint, from -20°C to -40°C, at a relative compressed air humidity of only 0.1%.

These are available as Heatless, Heat regenerated (Reduced Purge Air), Heat regenerated and Energyless.

HEATLESS DRYERS:

The DC series self-activating, heatless dryers, DC 21-32 remove moisture from compressed air. They contain two pressure vessels or towers, each containing a quantity of desiccant. One tower dries the air, while the other is being reactivated.

The 'heatless' principle of regeneration is based on the physical property of the desiccant, which liberates the adsorbed water vapour, if air with a low water vapour pressure is passed through it. For this, a percentage of the dried compressed air is expanded, as a result of which it contains little water vapour per volume. This purge air flowing through the adsorber helps liberate water vapour from the desiccant.

The heat of adsorption during the drying period causes a temperature rise of the desiccant which stimulates the liberation of water vapour and so the regeneration.

The oil vapour adsorbed during the drying cycle will be desorbed and discharged to atmosphere during the reactivating cycle.

DESIGN FEATURES The towers for models DC 21 to DC 25 are made of seamless aluminium tubes and the towers for models DC 26

to DC 32 are of steel tubes.

The towers are suitable for working pressures of upto 16 bar(e) (232 psig) and the standard air operated valves of DC 26 to 32 for working pressures of upto 10 bar(e) (145 psig).

Capacities range from 6 Nm³/hr to 1100 Nm³/hr.

Dewpoints achievable at 7 bar (g) are as low as -20°C.

Desiccant used is granular specially graded Delsorb.

WALL MOUNTED UNITS

A special wall mounting range is available for the first time in the country.

Models DC 21 to DC 25 have special wall mounting arrangements.

Ideal for small laboratories and workshops for small requirements of instrument air.



FLOOR MOUNTED UNITS

Models DC 26 to 32 are the floor mounted units and have the standard features such as air operated valves, purge air discharge silencer, check valves, purge air throttle valve, purge air restrictors, pressure gauges, timers motors and special filters.

ADVANTAGES

- ★ Automatic, continuous operation, with simple control system.
- ★ Lower initial cost, simplified installation, low maintenance and operating cost.



OTHER DELAIR PRODUCTS

Compressed Air Dryers: Refrigeration Type. Dehydrators for Waveguides and cables Brake dryers for Railways. Air/gas separation plants for the general industry.

Typical Application Areas

- ★ Pneumatic tools
- ★ Automobile industry
- ★ Food & beverage industry
- ★ Air circuit breaker
- ★ Cryogenic processes
- ★ Glass industry
- ★ Steel works
- ★ Hammer drills
- ★ Welding machines
- ★ Sand blasting units
- ★ Paint Spraying
- ★ Machine tools
- ★ Conveying of granular material