



Dry facts

...from Arctic India Sales

July - August - September 1982

Vol. 2 No. 3

OUR DELHI OFFICE IS STRENGTHENED

We are happy to introduce



MR. ARUN BHATNAGAR
MANAGER, INTERNATIONAL SALES

Mr. Bhatnagar, who has joined us in September will be in charge of our export programme for the range of dehumidification equipment, heat recovery systems, electric boilers & duct heaters.

MR. SUNIL NAYYAR
SALES ENGINEER

Mr. Nayyar, an air conditioning engineer has been added to our Delhi office sales engineering department to give you more effective and prompt support.



MR. K.A. PETERS
TECHNICAL SALES REPRESENTATIVE

Mr. Peter, too, has been included in our enlarged sales team. He will be assisting the sales department for full range of dehumidifiers, heat recovery systems and humidifiers.



Some Recent Applications

We have recently shipped out a 9000 cfm dehumidifier to Refrigeration and Airconditioning Corp. of India, New Delhi. This dehumidifier will be integrated with the refrigeration unit and will be installed for maintaining a negative film storage facility at 45°F and 50% rh i.e. 25°F dew point. This refrigeration-cum-dehumidification system will be used by the Military Engineering Services, Delhi Cantt.

Crystal Aeromatics, Delhi are using our 150 cfm compact dehumidifier for the manufacturing of Paan Masala.

Vikram Sarabhai Space Centre at Trivandrum are using our 300 cfm dehumidifier for maintaining 10% rh at 95°F for their research laboratory. This equipment was furnished with a water fed after cooler.

Shree Ram Krishna Soapnut Works at Mysore had purchased one compact table top dehumidifier for drying of Vermicelli.

A dehumidifier of 7500 cfm capacity has been ready for shipment to Lovino Kapoor Cotton Ltd. at Bombay. This will be used for cotton drying application and will serve to increase the drying rate over their existing system.

Naval College of Engineering, Lonavla have recently taken delivery of 4 dehumidifiers of 150 cfm capacity for their analytical instrument laboratories.

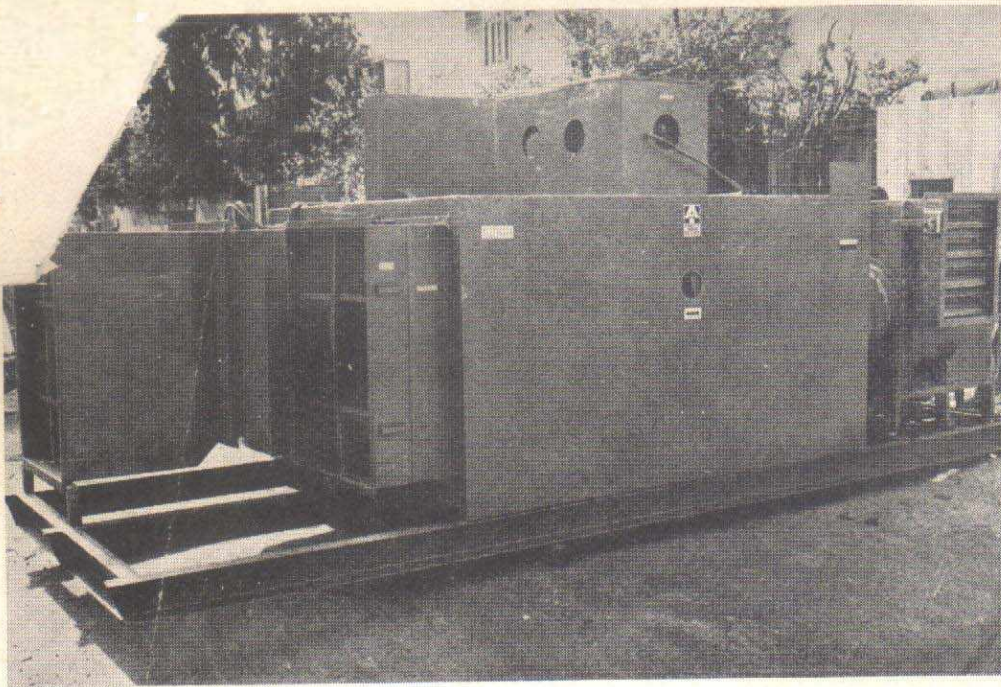
Malabar Fruit Products at Kottayam have recently taken delivery of our 150 cfm unit for the drying of their special fruit product at low temperature.

A 300 cfm integrated with a water fed after cooler and a special drying chamber is a forerunner of our standard seed dryers. This will be used for drying of various vegetable seeds by National Seeds Corporation.

New Telephone Number—Bombay Office

We are pleased to advise you of our new telephone connection (No. 4225155) at our Bombay office premises at 319 T.V. Tower Industrial Estate, off Annie Besant Road, behind Glaxo, Worli, Bombay-400025. We very much regret the inconvenience caused to you till date because of the communication difficulty in the absence of the telephone.

Our Bombay office timings are from 9.00 A.M. to 5.00 P.M. from Monday to Friday & 9.00 A.M. to 1.30 P.M. on Saturday. Our sales and service staff would be pleased to assist you during these hours on all working days at the aforementioned address and the new telephone number.



Card Board & Paper Products

The photograph alongside shows our 6000 cfm dehumidifier which has recently been shipped out to Card Board and Paper Products—Calcutta. This unit will supply dehumidified air in to a drying chamber for the drying of special kind kraft paper shells.

WHEN MOISTURE IS TORTURE !!!!!

In this column we will share with you regularly our experience on major application areas where usage of dehumidification equipment is both extensive and essential.

Powder coating which is a revolutionary technique in surface coating is catching up very fast and is becoming a threat to liquid coating in many applications. It is an absolutely pollution free process which offers excellent surface protection from corrosion (chemical & atmospheric) scratch & impact.

It is essential that the air being supplied to the powder coating room should be temperature & humidity conditioned. Primarily, the make up air to the spray booths should be dehumidified. On occasion, it may be necessary to dehumidify the entire coating room.

The advantages stem from two basic points :

- a) Lower humidities will provide the ideal environment for the powder particles to sustain their charge, prior to impact with the target.
- b) Since most powders are hygroscopic to varying degrees, high humidities will cause agglomerates to form on the walls of the recovery duct, filters and tubing. The filter baghouse will become less efficient requiring frequent attention.

Hence the advantages of using

Bry-Air dehumidifiers on electrostatic spray systems are as follows :—

- 1) Less powder (as much as 15%) will be used from two areas. The first being the uniform control of the film thickness and secondly original losses from powder build up and agglomerates.
- 2) Control of the electrostatic field and the potential to coat the target can be more precise with less daily adjustments.
- 3) Agglomerates are formed from particles fusing together by impacting during through the recovery system. Powder adhering to the duct, filters and tubing cause flowing particles to fuse from friction causing agglomerates. Dehumidified air will reduce the powder's ability to adhere to the inside surfaces, leading to increased system fluidizing.
- 4) A noticeable lack of corona build-up at the tip of the gun is caused by the reduced leakage rate across the gun anode to ground. The higher the air moisture content, the more corona leakage to ground, causing the powder to fuse at that point. This effect can eventually short out the gun and render the system useless.

5) Transfer efficiencies can be increased by up to 25% reducing the powder particles potential leakage from the time of discharge at the gun tip to target impact. The dryer the air, the less of a charge is lost in transit, meaning more particles are hitting the target and not going off to the recovery system.

6) With dry air entering the entire recovery system, there will be less change of gun build-up, agglomerates, reduced transfer efficiencies and clean-up or the changing of powder colors leading to 300% increase in system efficiencies.

7) The above advantages can be equated to one additional item: The man hours and loss of production saved from down time.

Since the applications of electrostatic powder coating plants are immense, widely in use for painting ships & vessels, railway coaches & wagons, bus bodies & truck chassis, earth moving equipments, marine chemical containers, wooden plants furniture, heavy machinery, construction sites etc; the Bry-Air dehumidifier would prove effective and advantageous for powder coating in all such applications.

THE CYANAMID EXPERIENCE

Presented below are the responses of Mr. B. C. Gandhi of Cyanamid India Ltd. to the queries of our editor regarding their experience with Arctic India dehumidification equipment.

Q. What are some of the important items that your company manufactures?

A. The important products like stresscap in hard gelatin shell, Lederplex cap, Autrin capsules, Gerral cap, antibiotic capsules etc. are manufactured by our company.

Q. Since when has your company been producing these items?

A. Manufacturing of stresscap in hardshell started since 1981, Lederplex Cap, is being manufactured for about twenty years.

Q. Is environmental control, specially dehumidification, an essential

requirement for the manufacturing of your product?

A. Yes, it is required.

Q. What made you opt for Arctic India dehumidifiers?

A. We wanted to maintain $35 \pm 5\%$ relative humidity in Hardshell room. Arctic dehumidifier was chosen for requirement of RH control and also its initial cost & operating cost is lower than any other system.

Q. Has there been any direct outcome in terms of increased production and quality improvement?

A. Yes, quality improvement is there.

Q. In comparison to the initial cost of the equipment what in your estimate would be the payback period of the equipment?

A. In our estimate the payback period of this equipment is about 2 years & 3 months.

Q. Have you faced any major problems with the equipment after installation?

A. No. After installation the equipment is working nicely.

Q. What has been your experience with the company's service before & after sales?

A. After sales & service provided by the company is excellent.

THERE'S TROUBLE IN THE AIR

PART IIb—ACHIEVING DRY AIR

This is in continuation from our last issue.

Bry-Air's simplified heavy-duty construction.

Given the proper desiccant, then, how does it function within the Bry-Air dehumidifier?

A small amount of the desiccant is housed in a specially constructed hollow disc known as the drying bed. This drying bed is fabricated from perforated sheet steel and horizontally mounted in the metal cabinet of the unit.

The cabinet itself is constructed of corrosion-resistant zincrometal. Its welded construction sealed with silicone, and access plates with neoprene closed-cell gasketing combine to function as an air/vapor tight compartment within the unit.

Bisecting the unit from top to bottom is a vertical partition that functions to insure that a sector of the drying bed remains in each compartment at all times.

Operation of the Bry-Air Dehumidifier

The drying process is first initiated with the introduction of 2 separate air currents.

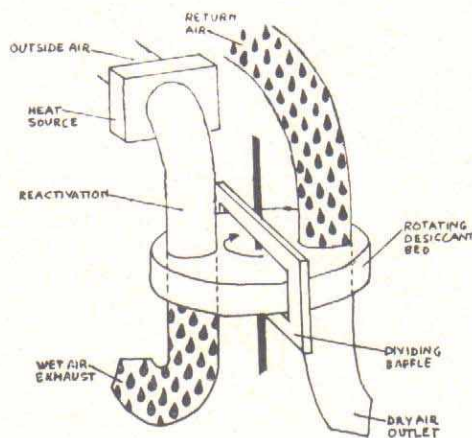
The first is that of the ambient air which is drawn through the drying bed by means of the process fan. Ambient air is that air which is to be processed for humidity removal. As the ambient (humid) air passes over

the desiccant (drying agent) it is dried and returned to the room.

The moisture laden desiccant then rotates to the other side of the vertical partition where it undergoes regeneration as it is subjected to hot air which has been heated to 250°F by means of the regeneration fan and heater.

The drying bed makes from 2-8 rotations per hour depending on the drying demands of the unit. The constant rotation of the drying bed combined with the regeneration capabilities of the desiccant makes possible the continuous drying feature inherent in all Bry-Air dehumidifiers.

PRINCIPLE OF OPERATION



The Bry-Air dehumidifier is preset at installation for continuous drying at a specified R.H. level. The operation of the unit is controlled automatically by means of a humidistat.

Controlling Temperature:

Using adsorbents for air drying is advantageous in that, as compared to cooling methods, there is no threat of frost or ice formation on the cooling surfaces of the unit.

Drying a desiccant, however, creates an air temperature increase with the release of adsorbent heat. In order to properly control air temperature, either preliminary or ulterior cooling devices may be used.

What size of Dehumidifier?

In order to obtain efficient dehumidification, great care should be taken in determining and selecting the proper size Bry-Air Unit.

In addition, unforeseen humidity loads may impose additional loads on the space. Factors causing extreme humidity loads are as basic as abnormal weather conditions or as complex as the arrival of moisture laden raw material to the process plant.

Bry-Air manufactures and supplies dehumidifiers in a variety of sizes, classified as small, medium, or large and available from 50 CFM to 30,000 CFM.



MCC POWERS

Electric Duct Heaters

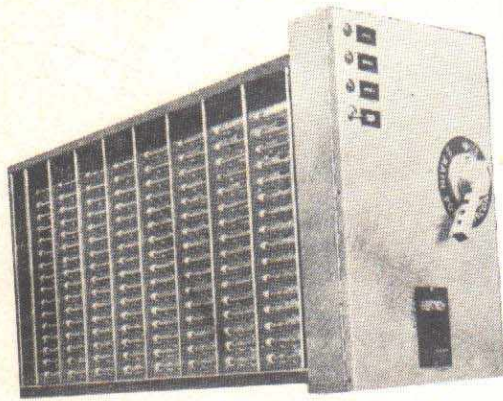
In our previous issues we have already introduced you to two important Brasch products— Electric hot water & steam boilers & Electric unit heaters.

Another new idea in electric heating are custom designed Electric DUCT HEATERS.

A custom sized duct heater can be installed in main duct of new or existing installation and used in conjunction with an air conditioner or air handling unit to heat entire building.

It can be used to supplement other types of heating systems such as heat pumps during very low outside temperatures. Varying loads in an airconditioned building may cause certain areas to be too cold requiring reheating of that particular zone. Also it can be used for humidity control.

Since duct heaters do not require constant attention and maintenance, they are ideally suited for buildings which are unattended for a period of time.



Electroduct heaters are offered in two basic constructions : Slip-in and Flanged. Slip-in heaters are standard & by far the most widely used because of their ease of installation. Flanged heater consists of a slip-in heater mounted in a flanged duct section. The slip-in portion slides out without removing flanges from duct : Both the heater & terminal box cover is in solid, nonperforated corrosion resistant steel frame. They are also fitted with thermal safety devices such as automatic reset thermal cutouts to de-energize entire heater when heater does not have sufficient airflow ; heat limiters are always installed in a duct heater & act as secondary safety devices.

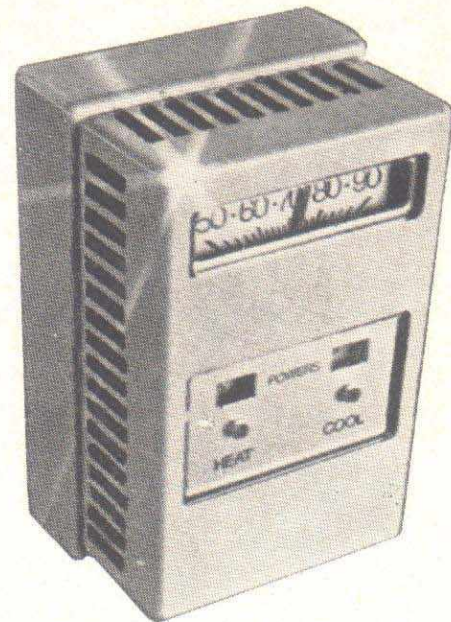
Electroduct heaters are dielectrically tested for 1000 V plus twice the rated voltage or 2000 whichever is higher. The resistance of each heater is measured & recorded at three different times and must be within 5% of rated value.

Advantages : Low initial investment, maintenance free packaged product for simple & economic installation. Interchangeable for Horizontal or Vertical air flow, no stack or chimney required double safety protection, low static pressure drop, no floor or wall space required, solid covers keep dust out of Terminal Box.

Room Thermostats

Designed for energy management and service efficiency, MCC Powers room thermostats offer : Precision controlled accuracy for reduced heating and cooling costs, adaptable design to reduce installation costs and time in retrofit applications, easy access service points for quick air filter maintenance and pneumatic out pressure checks.

The Powerstar's basic operating mechanism is simple dependable, sturdy and easy to maintain. A bimetallic sensing element quickly responds to ambient temperature changes, causing a uniquely designed valve relay system to provide immediate changes in branch pressure.



The powerstar model is a gradual acting, combination thermostat recommended for all season control of heating & cooling systems. It is direct acting during the heating cycle & reverse acting during the cooling cycle. A change in air supply pressure automatically causes change-over of control, from heating (25 psi) to cooling (18 psi).

The day-Night Room Thermostats are recommended for maximum comfort control during the day and maximum economy operation at night. Two bimetallic sensing elements are used. One controls at the day set point when supply pressure is 18 psi & the other element controls at the night set point, when supply pressure is 25 psi.

And Now MCC power has introduced the "Free Energy Band" thermostat. Compared with conventional systems, the Free Energy Band does not use heating on cooling energy unless space temperature go beyond the heating on cooling set points. Hence this all new energy saving thermostat delivers immediate cost savings and can be used on new installation as well as on most existing pneumatic temperature control systems.