



dry facts

...from Arctic India Sales

April - May - June 1982

Vol. 2 No. 2

Our Export Division

Arctic India Sales has launched its export division. In this connection one of our senior engineers Mr. Dinesh Haria will shortly be making a trip to the Middle East to develop a team of agents to effectively market our product range that is dehumidifiers and other environmental control equipment. Simultaneously Mr. Rajnish Joshi our senior Sales Co-ordinator also will be making a trip to South East Asia for a similar export promotion tour.

Some Recent Export Orders

For their requirement for maintaining dry condition in the Ammonium Nitrate Stores, His Majesty's Government, Swayambh Barood Khana, Kathmandu, Nepal have placed an order for a 300 CFM dehumidifier, which is our largest model in the table top series.

M/s. Modern Plastics Works Ltd., 41 Dharmapala Mawatha, Colombo, Srilanka have recently finalized an order from 150 cfm table top unit for food industry, chewing gum and chocolate wrapping.

The picture along side shows a 600 cfm dehumidifier which was specially engineered to incorporate a bypass duct & refrigerant fed after cooler, to give in all about 1200 cfm of dehumidified and cool air to maintain an optical research laboratory at 77°F and 35% rh. The unique feature of such engineered system is that no additional fan air handling unit is required, as the fan provided with the dehumidifier takes care of the additional quantity required to offset internal sensible load.

Some Recent Applications

V. Shantaram Motion Pictures have recently taken delivery of our 50 cfm unit for the film storage and processing. Similarly our 9000 cfm unit has been ordered for Defence use for the negative film storage facility near Palam, Delhi.

Vac-Tec (India) Pvt. Ltd. manufacture the most advanced type photo-receptor selenium drums by vacuum technology for automatic plain paper copiers. For their production, they have taken delivery of our 300 cfm dehumidifier.

H.M.M. Ltd., the makers of Horlicks as also their packing contractors: Gem Engineering, Gurgaon and Durendal Foods Pvt. Ltd. at Madras have gone in for our 150 cfm unit for controlling the relative humidity in their Horlicks packing rooms.

A specially engineered and designed Seed Dryer system has been just shipped out to Indian Institute of Horticultural Research, I.C.A.R.,

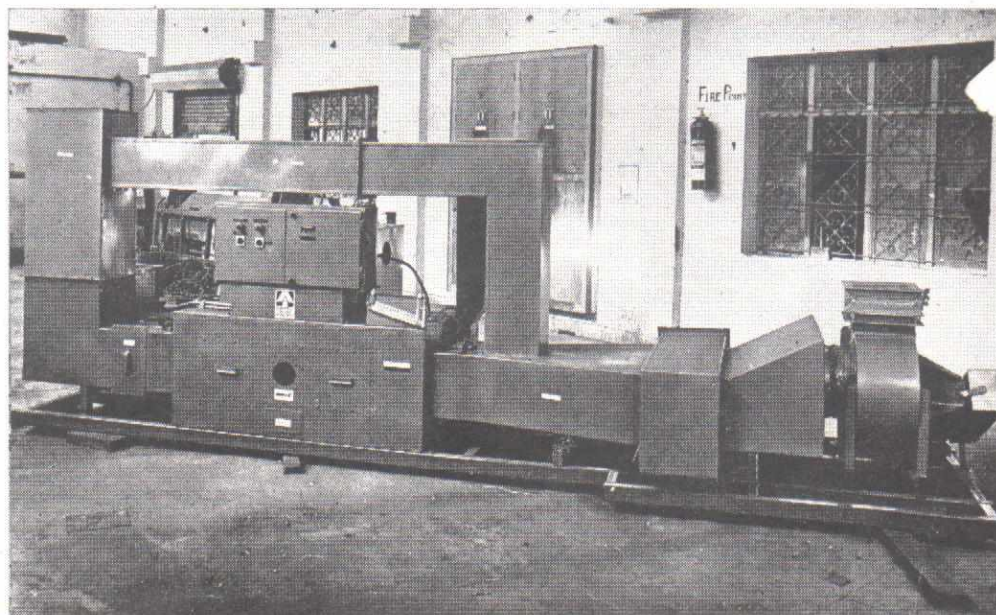
Bangalore.

Adarsh Chemicals have been now using for the past few months specially integrated 300 cfm unit with chilled water pre cooling coil for the process control in the manufacture of hygroscopic chemical.

Stead Electronics, one of the leading manufacturers of wire wound resistors and potentio-meters; for their new facility for controlling relative humidity in their manufacturing area they are using our 100 cfm unit.

Capacitor manufacturing required very controlled relative humidity and Uptron Electronic Devices for this purpose are using our 1500 cfm dehumidifier and Usha Electronics at Faridabad are using our 50 cfm dehumidifier.

K.R. Enterprises at Delhi, manufacturers of environmental chambers have incorporated our dehumidifier in a simulation chamber where they can control wide and varying range of temperature and relative humidity.



FROM THE AIS ALBUM



The picture above shows the AIS office and Factory staff members with their families at a picnic at the Sultanpur Lake.

Our Rep. Family Grows

Imtek Engineers, headed by Mr. Prem Munjal is our new representative in North India. Mr. Prem Munjal brings to Imtek Engineers specialized knowledge in Dehumidification gained through almost two years of design and sales experience in Arctic India Sales.

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.

All working in laboratories (analytical etc) and users of progressively sophisticated instruments are facing the problem of humidity and temperature control for satisfactory & correct performance from their instruments. Items like infra Red Spectro-meters, Scanning & Transmission Electronic Microscopes, etc. entail a very heavy capital expense and to protect it, laboratory incharge cannot afford to overlook the recommendations of the manufacturers/suppliers of such equipment in terms of environmental control of humidity, temperature & dust for guaranteed performance of the costly equipment.

Some of the analytical equipment which generally requires temperature and humidity control are scanning a Transmission Electronic Microscope from Jeoll (Japan), Phillips, Hitachi, Siemens; Infrared spectrometer from Carl Zeiss, Phillips, Perkin Elmen, Varian, Micro Processor/computer from E.C.I.L., MICROCOMP, H.C.L. Etc.

Based on the general recommendations of the various manufacturers of International repute, for a wide range of analytical instruments, it is determined that by and large, most of the recommendations for temperature and humidity control fall in the following range :

Temperature Dry Bulb	70°F to 80°F
i.e.	75°F $\pm$ 5°F

or	24°C + 2.5°C
or not exceeding	27°C to 80°C
Humidity (relative)	40% to 50%
or	45% $\pm$ 5%
or not exceeding	50%

To provide this with individually designed, specially engineered and custom built central airconditioning systems, works out to be a fairly expensive proposition in terms of first cost as well as operating cost, maintenance cost and staff cost, on top of the already very heavy capital expenses incurred on the analytical equipment. To minimise the expenditure on environmental control in analytical instrument rooms, is today possible by using standard room airconditioners and dehumidifiers to provide for temperature and combined humidity & dust control respectively, but within ranges as tabulated above.

The equipment for dehumidifying air/moisture removal/humidity control for such an application has to be essentially portable as well as occupying minimal space. While we manufacture and offer desiccant type chemical dehumidifiers in 23 different models, the smallest two are essentially portable table top units, which can meet the requirement of virtually any analytical instrument room. In selecting the refrigeration type dehumidifier

which is bulky the user is also confronted with the major problem of heat which the dehumidifiers put into the room to offset which, an additional room airconditioner has to be provided thereby increasing his capital cost and operating cost. The dehumidification process in our chemical dehumidifier is constant enthalpy operation which does not show up by way of any substantial heat input into the room.

Desiccant employed is adsorbent, non toxic, removes bacteria, and can be continuously regenerated indefinitely (several years), as equipment works independent of dew point, the dehumidifier can maintain 1% R.H. or even lower; this and the unique design of rotating desiccant bed with continuous regeneration, provides dry air at constant dew points, down to (—) 40°F, without fluctuation, peaks or valleys, a record unmatched or even approximated by (1) complicated refrigeration machinery or (2) "twin tower" type cycling systems relying on complex timers etc.

Thus our dehumidification equipment for effective humidity & dust control is being used by

Indian Oxygen Limited
U M S R D E
Vikram Sarabhai
B A R C

THERE'S TROUBLE IN THE AIR

PART II—ACHIEVING DRY AIR

This is in continuation from our last issue.

The amount of water that can be contained in air is related to both temperature and pressure of that air. Therefore, we can assume that by regulating air temperature and pressure we can control relative humidity.

Using Compression to Dry Air

As air is compressed its temperature is raised. Because warm air is conducive to humidity, there must exist a method of cooling the compressed air before dry air can be achieved. Unfortunately, the size of compression equipment and the amount of space needed for the auxiliary cooling equipment prohibits a practical application of this method in most cases.

Temperature Reduction Method

At lower temperatures the ability of the air to hold moisture is reduced. If, however, the sole purpose of cooling the air is to dry it, the method is rendered impractical.

To remove large amounts of water from the air by this method, over-cooling and subsequent reheating of the air is required. Because of the operating and maintenance problems as well as the high energy consumption inherent in these operations, the method is completely inefficient.

Another limitation to this method is the freezing point of water. When air is dried by means of refrigeration the cooling surfaces of the coils may reach sub-freezing temperatures causing ice to form which thereby reduces the efficiency of the cooling system. Anticing on the temperature equipment and defrost cycles are then required.

It should be noted that, depending on the temperature, it is only possible to achieve 50% R.H. by this method.

The Bry-Air Principle

Bry-Air dehumidifiers operate by the principle of adsorption: that is the principle whereby water vapor (humidity) is attracted to a solid (the desiccant) and retained without physical or chemical change.

Bry-Air uses any one of three desiccants depending upon the requirements and environment of the unit. They are: Silica Gel, Molecular Sieve, and Activated Alumina.

Silica Gel (SiO_2)

Silica Gel is perhaps the most common if not the most efficient desiccant available.

Silica Gel is harmless to the environment and, its successful use as a desiccant is made possible by its astounding affinity for water which allows it to adsorb up to nearly 40% of its weight in water vapor.

Molecular Sieve

Molecular Sieve is primarily used in high temperature drying applications. The desiccant is a metallic compound of Silica Gel and Activated Alumina. The percentage of Silica Gel and Activated Alumina is determined by the nature of the vapor to be adsorbed.

Activated Alumina

Activated Alumina is used by itself as a desiccant in the presence of liquid water. Its Properties make it ideal for marine use and offer 30—38% adsorption capabilities.

.....to be continued

WHO DO I TALK TO ??????

In case you are wondering just which department and person could best serve you when calling the office we are giving for your information a list of Sales and Office personnel with job description. Feel free to contact anyone on the list at any time.

Activity	Personnel
Sales Matter	DELHI : Rajnish Joshi, Dilip Sharma
	BOMBAY : Dinesh Z. Haria, Ravi Badge, A. D'souza
	BANGALORE : Pankaj' J. Shah, P. V. Padma Prasad
Commissions	Rajnish Joshi, Vinay Kumar Sharma
Equipment Shipping capabilities	Mohinder Singh, Yashpal Joshi
Engineering Assistance	Rajnish Joshi, Dilip Sharma Yashpal Joshi
Quotations	DELHI : Rajnish Joshi, Dilip Sharma
	BOMBAY : Dinesh Z. Haria, Ravi Badge, A. D'souza
	BANGALORE : Pankaj Shah, Padma Prasad
Literature requirements	Suman Giri
Drawing approvals	Rajnish Joshi, Dilip Sharma, Yashpal Joshi
Equipment operating problem	DELHI : Rajnish Joshi, Rajesh Ahluwalia, Yashpal Joshi
	BOMBAY : Dinesh Haria
	BANGALORE : Pankaj Shah
Field Service	Mohinder Singh, Rajesh Ahluwalia
Placing spare parts orders	Sasi Kumar, Dilip Sharma
Warranty replacements	Dilip Sharma, Mohinder Singh
Shipping Dates	Mohinder Singh, Yashpal Joshi
Advertising & Publicity matter	Vinita Pahwa
Accounting matters	Vinay Kumar Sharma, Anil Sehgal
Company Policy	Deepak Pahwa

Remember we are a small company and many can help. Should you not be able to reach anyone listed above under specific activity, most anyone can help.

Our business hours are 9.00 a.m. to 6.00 p.m. I.S.T. daily Monday thru Friday.

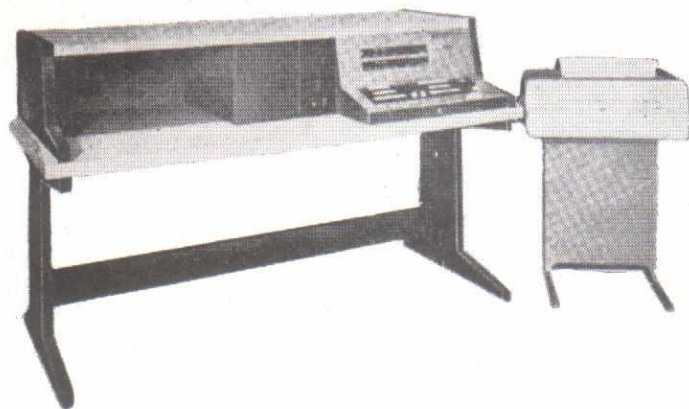


A Powerful Energy Conservation System for Building Management

Automation systems are by no means new. It is only the changing technological environment or circumstances under which they operate that dictates that the advances of new & modern technology be applied to gain maximum benefit for the money invested. It is to this extent that Barber Colman has designed the ECON VI Building Management system.

The ECON VI is a building management system designed specifically to conserve energy and lower building operating costs. In a literal sense it is a communications device that transmits information or data of how a building is operating. It is a central control system designed to monitor and control a building's environmental conditions, report off normal conditions, equipment malfunctions, security and safety alarms and reduce operational, maintenance, manpower and energy costs.

There are two versions of the ECON VI system, the Non-computerized and the computerized. In the non-computerized automation system the console operator is the decision maker, configuring building equipment for the most efficient operation based on data displayed on the console. In a computerized system the computer performs routine loads such as daily starting & stopping of equipment constant checking of temperature, humidity recording of elapsed run time & maintenance requirements etc. Therefore the operator can concentrate more of his technical expertise optimizing building operating efficiency.



Whether or not the system is computerized manpowers savings & energy economies are realized individually in each of the following separate functions.

Remote start & stop, temperature, humidity and flow indication, remote reset and remote changeover and alarms to alert about safety failures.

Virtually-ECON VI is Designed for the future-today.

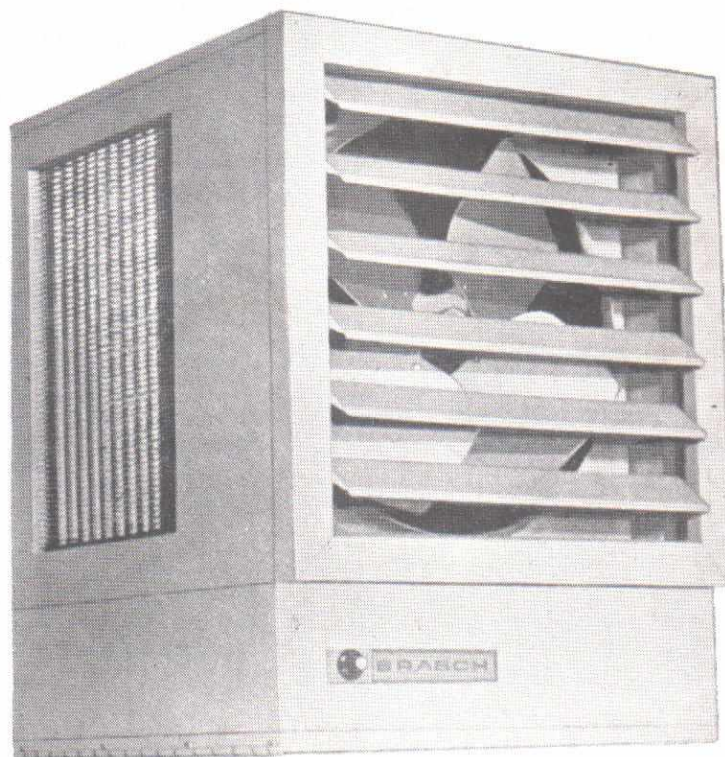


Electric Unit Heaters

Brasch Mfg. Co., the specialists in the field of electric heating equipment design and manufacture them for the commercial/industrial construction market to exact specifications. Brasch products continually incorporate the latest developments in electric heating.

Unique in design and versatile in application, Brasch unit heaters completely eliminate the need for piping, valves, traps, freezeups, water leaks vagrant heat waste, vents, stacks, gas piping and pilot lights. They are ideal for complete or supplementary heating of entryways, store-rooms, garages, ware-house, factories, power generating plants, pump houses and stores.

Available in 11 kilowatt selection to 50 kw these unit heaters are housed in a heavy duty welded steel cabinets for durability & trouble free operation. All models can be horizontally or vertically mounted. It is fitted with energy saving devices such as thermostatic fan switch which



dissipates residual heat to recirculate ambient air until temperature drops to 90°F; conserves energy with separate temperature settings for daytime comfort & nighttime economy. It is also fitted with the energy saving system—the Econowatt.

Small rooms may be heated by one unit heater only. Larger rooms require multi-unit installation arranged to provide perimeter air circulation.