



dry facts

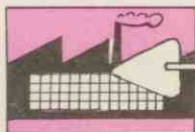
...from Arctic India sales

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BRY AIR EXPANSION

GOVERNOR CELESTE LAYS FOUNDATION STONE



On 10th February, 1987, four years after the inauguration of the Bry-Air plant, the Governor of State of Ohio, U.S.A., Richard F. Celeste, laid the foundation stone for Phase II expansion of the plant.

The Governor was in New Delhi, leading a 12 member Ohio State Trade Mission. The trade mission was to visit Bombay, Calcutta and Madras led by Mr. Paul Griesse, Chairman of Bry-Air Inc. U.S.A.

During the plant visit Governor Celeste remarked to the accompanying trade mission members that Bry-Air is an outstanding joint venture and serves as an example to business and industries in both Ohio and India.

The Phase II expansion plans of the company include a joint venture named Delair (India) between Bry-Air (India) as promoter and Dutch collaborators Delair. The new company will go into additional product lines in the field of drying, such as compressed air dryers, cable dryers and wave guide dryers which find applications in Chemical, Petrochemical, Fertilizer and Telecommunication industries, respectively.



▲ Governor Celeste laying the foundation stone. On his left are Mr. Deepak Pahwa, President, Bry-Air (India) and Mr. Paul Griesse, Chairman, Bry-Air Inc. (USA).

DELAIR INDIA

THE DUTCH CONNECTION



Delair-Droogtechniek en Luchtbehandeling B.V. aptly describes the activities of the company as drying of air gases and air treatment. The company has a rich experience of fifty years in the field of drying. The equipment manufactured by the

company has

- ★ Compressed air dryers—desiccant type;
- ★ Compressed air dryers—refrigeration type;
- ★ Cable dryers;
- ★ Wave guide dryers;
- ★ Brake dryers;
- ★ Electrode storage cabinets;
- ★ Inert gas dryers; and
- ★ Inert gas generators.

Delair makes the compressed air dryers for Atlas Copco worldwide.

The joint venture in India will manufacture most of the product lines and the plant will commence production shortly.

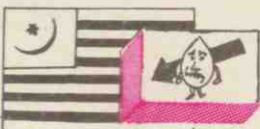
The Delair President Mr. Anton Ommert, and Technical Directors Hugo Van Der Waals and Peter Cazameir visited India in February to finalize details and programmes for the new venture.



▲ Picture shows from L to R: Mr. Anton Ommert, President, Delair, Mr. Peter Cazameir, Mr. Deepak Pahwa, President, Bry-Air (India), and Mr. Hugo Van Der Waals.

MALAYSIAN ORDER

BRY-AIR MVB's FOR TOBACCO STORAGE



Malaysia Tobacco Company, the makers of the world renowned cigarettes Benson & Hedges in Malaysia have placed an order for five MVBs on Bry-Air (India) for Tobacco Storage application. This prestigious job has come to Bry-Air against stiff competition.

2 MVB-30C and 3 MVB-20C, valued at US \$ 70,000 are being shipped from the plant in a record delivery time of six weeks. Long-term warehouse storage of tobacco requires the conditions of 67°F and 50% RH to be maintained. Bry-Air MVB can easily maintain the said conditions consistently.

A CONSULTANTS' VIEWPOINT

WASTE HEAT RECOVERY IN TEA PROCESSING



'Promising Options of Use of Heat Recovery and Solar Energy Systems for Tea Processing' was the title of the paper presented by Dr. S.C. Bose, an eminent consultant in the field of energy

conservation, waste heat recovery system, energy audits and non-conventional sources of energy. Dr. Bose has had a long association with NIDC for 14 years and has worked on several pilot projects of importance.

Of interest to us was his study on the renewable source of energy for tea processing for affecting a saving in consumption of commercial fuel. Bry-Air heat pipe based air-to-air heat recovery system was used in a pilot plant at experimental station, Jorhat, of the Tea Research Association. The findings of his study on the process makes very interesting reading which he agreed to share with our readers.

are now resorting to indirect heating of ambient air to supply the heat requirement for withering or drying operations, by burning of coal, natural gas, leco and wood.

The heat carried away by the exhaust air in both processes is substantial and moisture-laden. The waste heat available in the tea factories are mainly at two points namely:

- ★ flue gas, and
- ★ exhaust of tea dryer.

A 200 kg capacity made tea drier releases 0.2 million kilo calories of heat as waste heat per hour at around 60-65°C alongwith the exhaust. In addition to it, around 6 million kilo calories of heat is exhausted through flue gas at 200-250°C.

Therefore, there exists considerable scope in reducing the

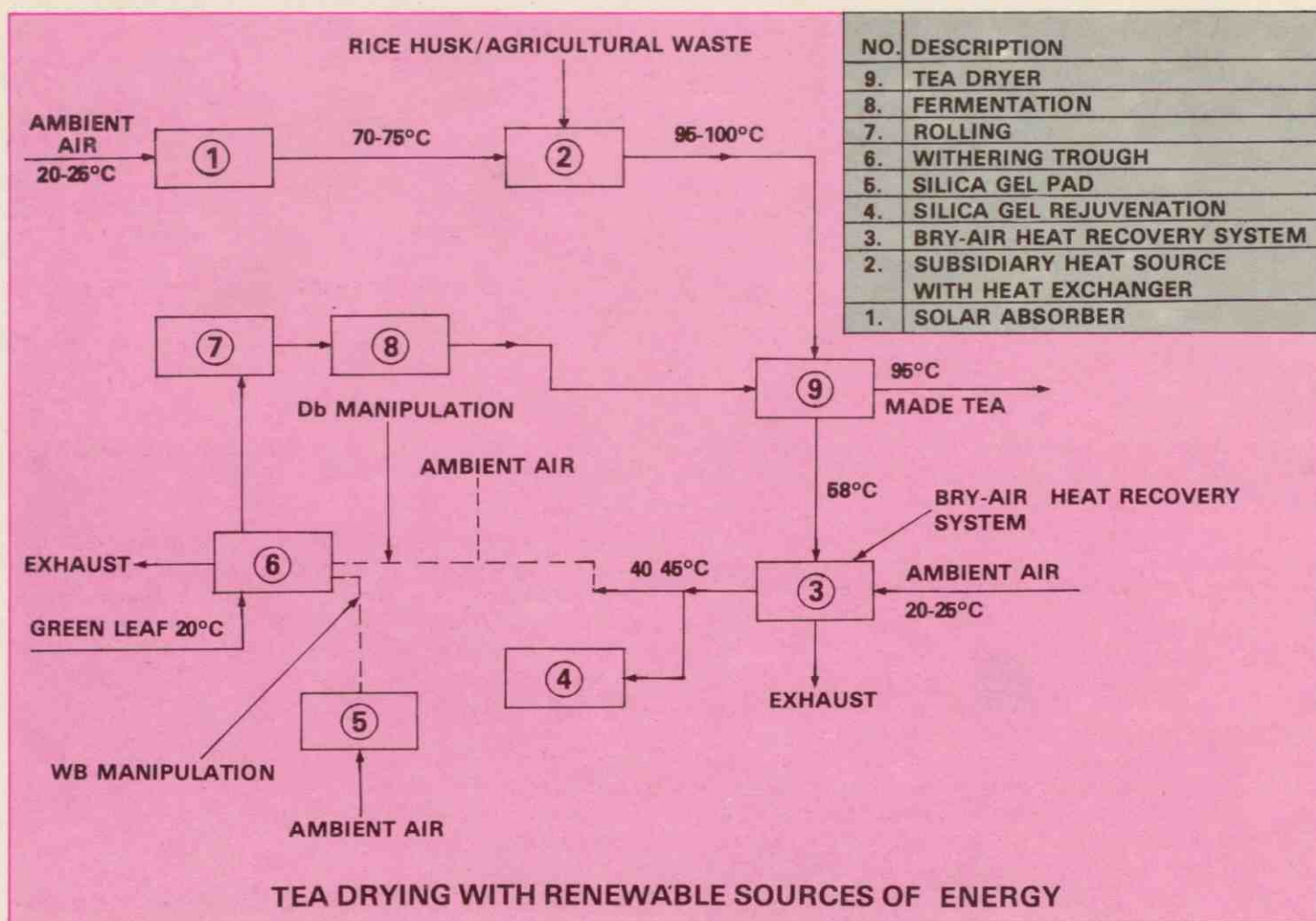


Diagram 1

Heat Requirement for Tea Processing

Heat required for the tea processing is mainly for withering and drying. The total heat consumed in processing of one kilogram of made tea is around 6000 kilo calories.

For withering, hot air at 30°C, and for drying, hot air at 100°C is required. With the increased cost of tea drying, oil factories

consumption of commercial fuel by the use of waste heat recovery system along with the use of solar energy.

Block schematic diagram of a system showing heat recovery system installation is shown in Diagram 1. The waste heat recovery system (no. 3 in the diagram) is installed at the exhaust of the dryer whereby the waste heat is transferred to heat the

incoming ambient air. Pre-heated air so produced can be supplied to the drier after further heating the same in the furnace indirectly. In case the withering troughs are near the driers, hot air requirements for withering can be met by mixing the pre-heated air with ambient air.

Results of Pilot Plant Study

A pilot plant having a capacity of 10 kg/hr was established at Experimental Research Station, Jorhat in February, 1983.

An analysis of the results showed that an energy saving of 20-30% is obtained even under the most adverse weather conditions.

The greatest advantage of the waste heat recovery system is that it can be established at any tea factory at a nominal cost. The system is not dependent on the existing factory layout or on the time of arrival of the green leaves or on the type of tea being produced.



Diagram 2

Results of Study on Full Scale Plant

A detailed study on the feasibility of the establishment of the system proposed were carried out at the following tea gardens:

- ★ Nonaipara Tea Garden, Assam.
- ★ Tungamullay Estate Tea Garden, Kerala.

A study at Nonaipara Tea Garden revealed that the use of solar energy-cum-waste heat recovery system is techno-economically viable. Capital cost for incorporating the system is estimated to be around Rs. 69 lakhs. The pay-back period of the investment is slightly more than two years. Installation of the system will effect 37% saving in commercial fuel.

A study at Tungamullay Estate Tea Garden revealed that the capital cost for incorporating the system is estimated to be Rs. 33 lakhs. Incorporation of the system will effect a saving of 30% in the consumption of commercial fuel. Pay-back period for the project is around three years.

The above projections are for a combined system consisting of solar panels and the waste heat recovery system. The capital investment on a waste heat recovery system is generally much

lower, thus the pay-back periods are likely to be more attractive.

Advantages of the Bry-Air Waste Heat Recovery System

It is a passive energy recovery system requiring no external power for heat transfer. It has no moving parts and hence requires minimum maintenance.

The system can be used to maximum advantage in a natural draft system, as there is practically no pressure drop; it requires less surface area than the plate fin design, thus allowing less pressure drop with the same performance.

The Heat Exchanger is made up of a number of heat pipes. The integral finned heat pipe due to its design provides a desirable surface for clearing and can withstand high pressure cleaning without distortion of fins. From the tests carried out in the tea factory, it was noticed that exhaust from the dryer

Air-to-Air Heat Exchangers are based on a concept which was developed on the basis of extensive research and is the latest in technology being used in the western world. The system is a boon to the energy starved industries so typical to India. Promising application areas keep changing with the needs of the industry.

contains tea fluffs which get embedded on the exchanger. The heat exchangers can be periodically cleaned with little effort. The exchanger can also be so constructed so as to overcome the problem of deposits. Each heat pipe is individually constructed and hence allows individual testing for peak performance and is completely replaceable in the exchanger.

Application of Interest

Dr. Bose feels that the system can be applied directly in the following industries:

- ★ Baggasse Drying in Khandsari and Gur Industry
- ★ Tea Drying
- ★ Other Waste Heat Recovery Systems

A system is as good as the application it has been put to. Air-to-Air Heat Exchangers are based on a concept which was developed on the basis of extensive research and is the latest in technology being used in the western world. The system is a boon to the energy starved industries so typical to India. Promising application areas keep changing with the needs of the industry.

We are thankful to Dr. Bose for pioneering work in this important field and let us hope the industry too will benefit from his experience and study.

WHEN MOISTURE IS TORTURE!!!

THE HEINEKEN STORY



'Hygiene' is an inherent problem in any brewery and distillery. Problems like mould and fungus growth on walls, hops storage and in fermentation and yeast rooms all arise from the one common factor—Moisture or Humidity.

The brewing process requires very low temperatures. The presence of high humidity due to frequent water usage for cleaning makes conditions conducive to condensation and growth of bacteria. It is a known fact that if at low temperatures typically 0 to 2°C RH is maintained at a level of 60% or lower, the growth of bacteria is eliminated.

World standards for temperature and humidity conditions in various areas are as under:

	Temperature	Humidity
★ Hops Storage	35	60%
★ Fermentation Rooms		45%
★ Filter Rooms		45%
★ Grain Storage	60	40%

Dehumidification keeps relative humidity levels low and retards or prevents spoilage from organic corrosion.

Additional areas where dehumidification eliminates organic corrosion are yeast rooms, fermentation rooms, storage services and kegging areas. Apart from preventing organic corrosion, the added advantages of RH control are increased sanitation and reduced maintenance cost, frost free operation and quicker drying of floors after washing.

Heineken, the Dutch beer brewers, are famous all over the world and need no introduction. Maintaining high quality in all aspects of the production of beer is of prime importance to all Heineken employees. So when they had a problem of condensation, bacteria and hence maintaining hygiene in their production area, they contacted Delair, the Dutch licensee of Bry-Air Inc.

Delair engineers started with the known fact that relative humidity, if kept below 60% at temperatures of 0-2°C, will prevent condensation and hence the growth of bacteria.

The total moisture load at a temperature of 0°C amounted to 102 Kg of water removal per hour. To remove this amount of water, a dehumidifier type MVB-200-2E, with a nominal airflow of 34,000 sqm/h was necessary. Heat recovery in the regeneration sector was considered. Heat sources were available by way of steam for regeneration.

The dehumidifier was installed on the roof of a six floor production building in a sheet metal housing. From there the dried air was distributed to each of the five floors and the basement area. The exhaust air from the production areas was returned to the dehumidifier and dried again.

Thus, Heineken maintained their hygiene standards by using a Bry-Air dehumidifier.

HAPPENINGS

'BRY-AIR KEEPS THE INDIAN FLAG FLYING HIGH'



The Indian Flag outside the 'Pharma Expo' held in Moscow between 10-24 January, 1987. Bry-Air was the only Indian company to participate among several European companies. (Inset) A view of the Bry-Air booth.



BRY-AIR DAY CELEBRATIONS



Shafiullah receives the best worker award for the year 1986, at a picnic organized on 28th February, 1987, which is celebrated as Bry-Air Day.



FORM IV

Statement of Ownership and Other Particulars of 'Dry Facts'

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I, Vinita Pahwa, hereby declare that the particulars given above are true to the best of my knowledge and belief.