KATHABAR Dehumidification Systems

Kathabar Systems has manufactured desiccant dehumidification and energy recovery equipment for over 70 years. Kathabar's mission is to provide reliable and energy-efficient air temperature and humidity control for a wide range of industrial institutional and commercial applications.

Over the last 70 years, the design of Kathabar equipment has been continually evolving. Advances in heat and mass transfer technology and advances in construction materials have culminated in the development of the Kathapac FRP line of liquid desiccant dehumidifiers.

Energy cost and availability issues have resulted in the development of the Twin-Cel air-to-air enthalpy recovery system. Today, Kathabar Systems offers you the unbiased choice between liquid and dry desiccant systems to best meet your needs.

KATHABAR *dry* Desiccant Systems

The latest product of this design evolution, the Kathabar KBD Series, is designed to provide additional benefits for dehumidification applications better suited to dry desiccant equipment. These benefits include the following:

- Simple, independent control of temperature and humidity
- Large range of airflow capacities up to 60,000 CFM
- Factory-integrated packaging capability
- Controls and automation integration to any desired level

Operating Principle

The KBD dry desiccant systems operate on the principle of adsorption of water vapor from the air. The adsorbent (or desiccant) used is silica gel. The silica gel is formed on an inorganic substrate. The desiccant and substrate are arranged in a wheel-shaped rotor matrix having thousands of small, parallel air passages extending through its thickness.

The desiccant rotor is housed in a cabinet that is separated into process and reactivation sections. In the process section the air to be dried passes through the rotor and the silica gel adsorbs some of the moisture from it. The dehumidifying process heats the air, so the air leaving the rotor is drier but warmer.

To drive the adsorbed moisture out of the desiccant, the rotor slowly rotates into the reactivation section, where a second, heated air stream passes through the rotor. The hot air heats the desiccant, driving the water out of it. The moisture-laden reactivation air is usually exhausted outside. The reactivated desiccant rotor rotates back into the process section to provide continuous drying of the process air.

In many applications the process air is cooled before entering the desiccant rotor to enable the KBD unit to produce dryer air. When pre-cooling is needed, this cooling coil is usually included with the KBD unit.

Because the process air is warmed while passing through the desiccant rotor, it may be too warm to suit the use requirements. If so, a final cooling coil is required, and is usually included with the KBD unit.

The reactivation air stream may be heated by electricity, steam, hot water or natural gas, depending on the application and available utilities. The air heating devices and its controls are usually included with the KBD unit.