

## Air Condition Equipment Businesses

### Desiccant air conditioner with a built-in advanced polymer adsorbent dehumidifying rotor reactivation by low temperature

A desiccant air conditioner which condition low humidity air conditioning using desiccant attracts attention recently as an effective saving energy measure because a comfortable air conditioning and a process air conditioning are possible, dehumidifying by using a various kind of waste heat. However, a conventional desiccant air conditioner with a built-in adsorbent, such as silica gel and so on, dehumidifying rotor was not so popular except for industrial air conditioning use, because the heat of

more than 80 degrees centigrade was necessary to reactivation the desiccant. We at Kubota have developed ( together with another company ) a advanced polymer adsorbent dehumidifying rotor for low temperature waste heat use less than 80 degrees centigrade. And it became one of our desiccant air conditioners. The advanced polymer adsorbent has an extremely high absorbing and discharging humidity performance. The material is also widely used for clothes and inner cotton of mattress.

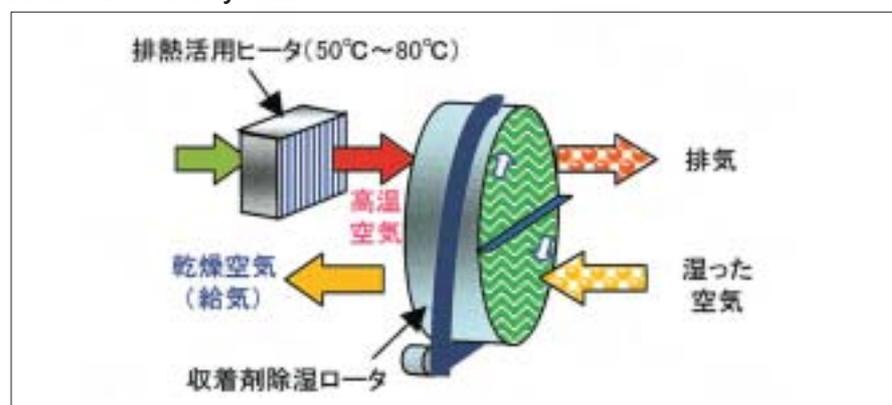
The advanced polymer adsorbent is more efficient in dehumidifying performance by 20 to 30% compared with conventional one at the lower reactivating temperature. Moreover, we have realized a long life of the dehumidifying rotor because the performance of it doesn't deteriorate by repetitive reactivating.

We intend to increase an application of the desiccant air conditioner for low temperature waste heat use from now on.



Advanced polymer adsorbent dehumidifying rotor

#### Flow chart of the system



### Saving energy type of Compact air handling unit (synchronous motor + small-sized plug fan)

Approximately 25% of the whole energy consumption is used for air conditioning and ventilation in an ordinary office building. From the point of view of saving energy, it is getting more important for us to reduce energy for air conditioning and ventilation.

It is necessary for us to make fan and motor highly efficient regarding hardware in order to save energy in air conditioning and ventilation. We at Kubota developed an air handling unit with a built-in high-efficient small-sized plug fan, and have been selling it.

We have newly developed a compact air conditioner with a built-in plug fan adopting a higher efficient synchronous motor<sup>(\*)</sup> than an induction motor in order to save more energy.

This saving energy air conditioner with a built-in synchronous motor and small-sized plug fan can save energy by about 25% compared with our standard one ( a induced motor and sirocco fan ). This saving energy air conditioner began to be actually adopted in office buildings. And we are now expecting it sells widely.

(\*) synchronous motor: In this motor, permanent magnet is used in rotator. There is few slip loss in this one. So saving energy is possible.



Saving energy type Compact air handling unit