SERIES HRW

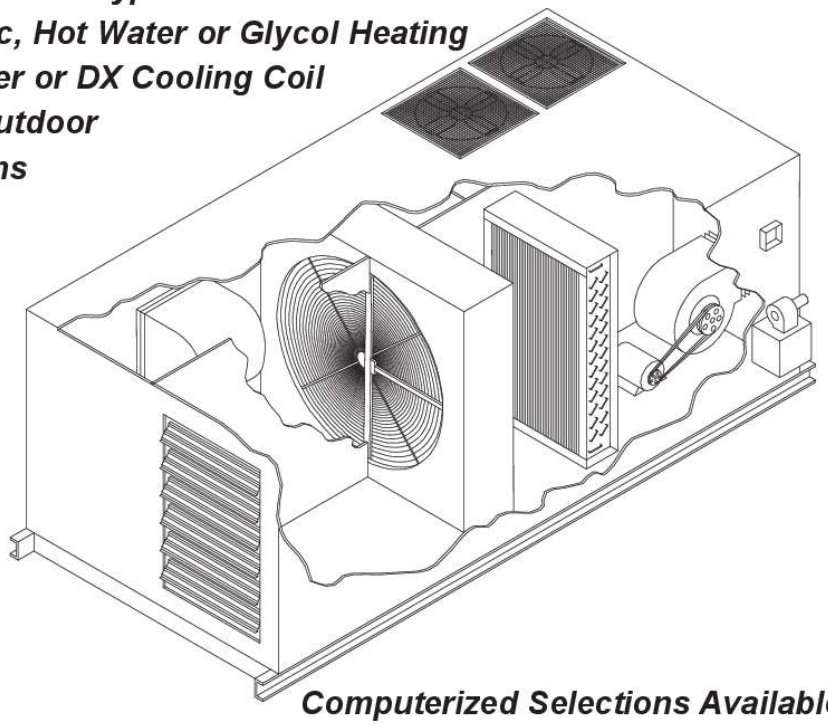
PACKAGED HEAT RECOVERY

with the ENGINEERED AIR

TOTAL! ENERGY WHEEL

- ☐ ***Energy Savings***
- ☐ ***Single Source Responsibility***

- ☐ ***Choice of Blower Types***
- ☐ ***Gas, Electric, Hot Water or Glycol Heating***
- ☐ ***Chilled Water or DX Cooling Coil***
- ☐ ***Indoor or Outdoor***
- ☐ ***Filter Options***



Model FWB-DJ-HRW shown

Computerized Selections Available

- ☐ ***Wheel Sizing***
- ☐ ***Pay Back Analysis***
- ☐ ***Comparative Analysis***

See your Engineered Air Representative

EngA ENGINEERED AIR

TOTAL! ENERGY WHEELS

CALGARY, ALBERTA DESOTO, KANSAS NEWMARKET, ONTARIO

EngA ENGINEERED AIR

Series HRW Total Energy Wheels
What is a Total Energy Wheel?

Total Energy Wheels, sometimes referred to as air-to-air rotary heat exchangers, are formed of a substrate of alternating layers of corrugated and flat material wound about a hub to produce a rotor or wheel with a honeycomb structure through which air can pass in contact with a large heat transfer surface. (See fig. 1)

Figure1
A2700mm Total Energy Wheel

The thermal performance of the wheel, (or, in other terms, the sensible performance) is attained by passing a warm air stream through a semi-circular portion of the rotating wheel, which in turn transfers a large portion of its heat to the honeycombed substrate. As the wheel rotates into the path of a cool air stream, the substrate gives up its heat to that medium, thus warming the cool air. For optimal performance, the two air streams, typically makeup air and exhaust air, pass through the rotary exchanger in a counter flow configuration. For each design of wheel, there is a RPM for maximum heat transfer. The wheel can be slowed down if necessary, in order to reduce the rate of heat transfer.

The latent performance of the wheel is attributed to the desiccant coating adhered to the rotor. The desiccant used on Engineered Air total energy wheels is a zeolite, sometimes referred to as a molecular-sieve. Zeolites, both natural and synthetic, have been employed as absorbents for gas separation for many years. They have been in use in the HVAC industry since the early 1980's as a desiccant for total energy and dehumidification wheels. The zeolite desiccant consists of a multiplicity of pores, which absorb and hold molecules.

The driving force for absorption is the vapor pressure differential between the structure of the desiccant particle and the atmosphere around it. Likewise, vapor pressure is also the force for desorption. That effect may be enhanced by heating the air. Fig. 2 shows the aluminum substrate on which the desiccant is adhered. Engineered Air employs aluminum for maximum sensible heat transfer and its ability to hold the desiccant coating.
The benefit of utilizing zeolite as the desiccant in total

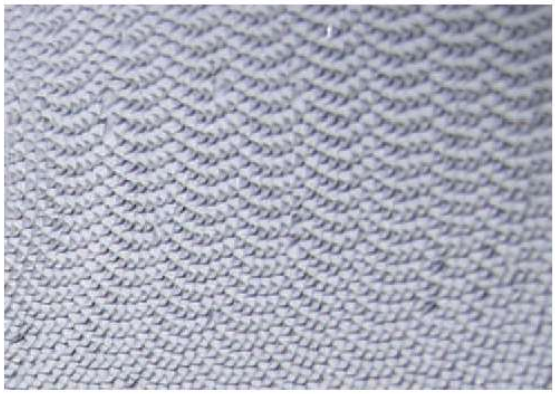


Figure1 : Desiccant Coated Substrate

energy wheels is attributed to the speed with which it absorbs and desorbs moisture. Other desiccants such as silica gel have a greater moisture holding capability, but take a much longer time to absorb and desorb moisture.

Engineered Air total energy wheel has the highest sensible efficiency of any of the reclaim products offered by Engineered Air. Total energy reclaim is particularly advantageous in climatic zones where the cooling demand is high for extended periods of time, and/or in areas with high ambient humidity. The additional benefit of *moisture transfer* makes this product a *must* for any makeup air system, whether it is new or retrofit construction.