

SEMCO Exclu-Sieve® energy efficient dual wheel system for the Georgia Power Company



Georgia Power Company was determined to let SEMCO EXCLU-SIEVE™ dual wheel system provide the perfect solution for their power plants. The installation has been operating in an efficient, trouble free manner for more than three years, saving a lot of energy and money.

■ FACTS

Customer:

Georgia Power Company in Georgia, USA.

Need:

Energy and cost efficient ventilation solution. Excellent indoor air quality, due to hazardous coal dust.

Solution:

SEMCO EXCLU-SIEVE™ dual wheel system.

Improved Indoor Air Quality and reduced operating costs

SEMCO EXCLU-SIEVE™ dual wheel system has been the perfect solution for Georgia Power Company. The company decided to discount their conventional approach and invest in a design solution that would be both energy efficient and easily controlled.

Challenge

Each shipment of coal purchased by Georgia Power is sampled, pulverized and then ignited under laboratory conditions to determine its heating value. Hazardous coal dust is generated during the pulverizing procedure. Therefore the laboratory area has to be supplied with outdoor air at the rate of approximately 50 air changes per hour. It was estimated that a conventional cooling system with reheat would cost more than \$47,000 to operate annually, assuming a continuous operation of the 9,000 cfm system and an electrical cost of \$.06/KWH. An even bigger concern was controlling the supply air conditions carefully enough to maintain design specifications despite the tremendous air exchange rate.

Solution

The EXCLU-SIEVE™ dual wheel system approach was determined to provide the “perfect solution”, according to Georgia Power’s design engineer. The dual wheel concept requires only 16 tons of cooling capacity while the conventional cooling/reheat approach requires nearly 60 tons. Reheat requirements with the dual wheel approach are totally satisfied by the sensible recovery wheel in most cases, while the conventional approach required in excess of 35 KW. The condition of the air supplied to the space is carefully controlled by modulating the speed of the sensible energy recovery wheel.



The EXCLU-SIEVE™ system virtually eliminates the need for reheat since the highly efficient sensible wheel utilizes the sensible gain in the space to reheat the supply air which has been cooled and dehumidified by the cooling coil.

An added feature of the EXCLU-SIEVE™ dual wheel packaged system is that it has a built in economizer mode which allows for the cooling coil to be shut off on cool days with the sensible wheel being controlled to provide the minimal reheat required. In the heating mode, the two energy wheels are operated simultaneously to provide more than 90% recovery effectiveness. This results in a low heating cost.

“The SEMCO dual wheel system has been super. The system has saved Georgia Power a bunch of money and has done so with minimal maintenance. Since we have a direct digital controller that can be accessed via modem, we know that the design conditions are being effectively maintained” says Jim Mackinder, project engineer for Georgia Power.

SEMCO

SEMCO is a unique indoor environment products manufacturer serving the key disciplines of air distribution, noise abatement, temperature, and humidity control in the commercial and industrial building markets. SEMCO was acquired by Fläkt Woods in 2007.

Fläkt Woods Group

Fläkt Woods is a global company providing solutions for ventilation and air treatment for buildings as well as fan solutions for Industry and Infrastructure applications.

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