Construction at ground level can reduce costs

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Rotary Heat Exchangers
Optimising performance in the power generation industry – worldwide

Outstanding technology from the world leader in air and gas handling equipment
Advanced solutions

Few industries today make more rigorous demands on plant than the power generation industry – and few types of power station plant face a tougher task than the rotary heat exchanger.

Uninterrupted power generation requires the highest quality air preheaters for optimum boiler performance. Effective environmental control requires efficient and reliable gas reheaters for flue gas desulphurisation.

At Howden Power we can call on more than 70 years’ experience of producing rotary regenerative heat exchangers for customers around the globe. In recent years, Howden’s advanced solutions for leakage performance have received international recognition.

Today, power stations in six continents benefit from the integrity of our exceptional patented VN design concept. Reductions in outage time and maintenance costs are other major benefits of our product’s superior performance and reliability.

The Howden Pedigree

Howden Group, which was founded in 1854, is the world’s largest and longest established fan manufacturer and was the first company to form a joint venture with Fredrik Ljungström to produce rotary regenerative heat exchangers for the power generation industry. Today the Group has over 40 subsidiaries in 17 countries operating in a wide range of markets ranging from building services to heavy industry.

Howden Power products and services are extensively used in heavy industries such as power generation, iron and steel production and cement manufacture, where the highest levels of performance and integrity are of paramount importance. It has major engineering and manufacturing facilities in Denmark, The Netherlands, India, China and the United Kingdom. With a network of offices and service centres spread throughout the world, the division is ideally positioned to provide unparalleled assistance to customers, from project acceptance to post warranty operation and maintenance.
After more than 70 years of heat exchanger manufacturing, we can supply a range of sealing systems to suit the most demanding requirements. In the late 1960s Howden was the first to introduce actuated sector plates to its designs. We now offer a range of variants on this basic concept.

In more recent times, attention has focused on leakage drift - substantial increases in leakage over a period of time - as one of the inherent problems of traditional heat exchanger technology. To the extent of major research and development programmes in the mid-1970s, Howden sealing systems now make an outstanding contribution to the long-term leakage performance of heat exchangers worldwide.

Vitally, with the Howden advanced VN sealing system, leakage remains constant for extended periods, a fact that has been proven on numerous sites. This is because the system improves the seal design on both the rotor and the casing, and dispenses with the need for actuated sector plates.

The benefits are numerous. Improved leakage performance will give the customer the ability to install smaller fans which will reduce overall fan consumption. This in turn improves overall boiler operation and reduces emissions. It provides selective in situ inspection making it easier to monitor and reflect any sealing performance issues. This also allows variable fans to be used without fear of leakage or gas preheating problems.

The Howden advanced VN sealing system keeps leakage consistently low for extended periods between outages.
The VN design also brings its low-leakage benefits to the Howden high performance, cost-effective FGD gas reheater. Judicious selection of materials, together with advanced design features, result in a heat exchanger with exceptional resistance to the cool moist conditions of FGD plant, where fouling and corrosion are a constant challenge.

Specially formulated enamel is used to protect the elements. The process has been specifically chosen to provide an extremely high degree of adhesion and flexibility in addition to exceptional resistance. Areas where significant condensation is expected are coated with acid-resistant linings such as flake glass vinyl ester.

By combining the VN sealing system with fluid energy sealing, virtually all untreated gas can be prevented from leaking into the treated gas stream. Virtually all known sources of leakage can be reduced to levels as low as 0.25 per cent.

The unique VN cleaning system, meanwhile, provides air, low pressure water and high pressure water in a single lance which can be withdrawn whilst hot to be used, and retracted for maintenance whilst the reheater continues to operate.

Retrofitting

We can retrofit the Howden VN sealing systems and/or higher efficiency elements to all types of rotary heat exchangers on site irrespective of original manufacturer during a normal maintenance outage. The main benefits include:

- Reduction in gas outlet temperature, increasing boiler efficiency.
- Reduction in air flow which will permit any future plant retrofitted downstream to be reduced in size.
- Increase in air flow to the coal mills, removing any limitation in MW output imposed by inadequate fuel transportation.
- Removal of any reduction in station MW output imposed by air leakage eliminating the fan margins.
- Reduction of air velocity through the precipitator, improving collection efficiency and thus reducing dust emission from the chimney.
- If the station MW output has been limited by air preheater leakage, retrofitting the Howden sealing system can effectively add new generating capacity at a fraction of the cost per MW of a new station.

For further information on any of the subjects covered in this brochure, or for any advice regarding fans and heat exchangers please contact us at the address overleaf.