Steel Plant
Waste Gas Sinter Fans

Service through partnership

An unprecedented collaboration between two specialist companies Howden and Siemens to raise new standards of excellence and efficiency.
The partnership between Howden and Siemens creates a unique reservoir of expertise and experience. Each company has over 150 years of experience in engineering. Each has made an enormous global contribution to maximising efficiency and reducing waste. Each has been at the forefront of innovation and change. This historic collaboration will raise fan performance to new levels of quality, reliability and efficiency.

Siemens
Siemens breadth and vision led to a string of historic innovations, including the installation of the world’s first power station and electric street lighting. Siemens laid the first telegraph cables between London and Calcutta, and under the Atlantic to North America. Today, the same spirit of enterprise and invention keeps Siemens at the forefront of engineering and technology.

The company’s interest in steel manufacturing dates back to the founder himself, who built a steelworks dedicated to experimenting and testing theories. It was here that he developed the ‘regenerative’ principle, feeding hot fumes back to help heat the furnace. Siemens also made an immense contribution in electrical engineering, discovering the dynamo-electric principle and developing the first devices for measuring voltage and resistance, and gave us the unit of resistance, the ohm. More recently the company was behind the first 1Mb memory chip to go into production and the world’s fastest neurocomputer.

Today, Siemens Automation and Drives is the world’s leading supplier of automation, industrial control and electrical distribution equipment, with a worldwide workforce of over 50,000 people.

Howden
Howden has its roots in marine engineering, developing the ‘forced draught’ boilers which reduced fuel consumption and made long-distance steamship travel practical. The founder, James Howden, took his expertise into power generation, designing high-speed steam engines for the production of electricity. His continual pursuit of efficiency meant that by the time of his death in 1913, he had established Howden as the world leader in the design and application of air-moving equipment.

Over the century, Howden built a world-leading expertise in air and gas handling, supplying and installing fans and heat exchangers throughout the world. Today, the company is the acknowledged leader in supplying fans for demanding situations such as high-temperature and corrosive environments.

The rapid expansion of iron and steel making technology, and the increase in size of sinter plants, has brought the development of custom-designed Howden fans of ever greater power, efficiency and reliability.

quality and service assurance

Focused on customer support
Howden and Siemens share more than an impressive history of innovation. Both companies have a reputation for first-class service from project inception right through to the end of the plant’s life. They take a long-term view of every project, providing advice, project management, spares and support. No one has more experience or a better reputation in their field.

Integrating our expertise
Through partnership, Siemens and Howden offer a combined fan, motor and control package free of the compatibility issues which can arise with separate suppliers. This not only ensures that every part of the process works in harmony with every other, it allows the performance of each individual element to be maximised.
Every package is designed as an integrated part of the plant into which it will be fitted.
STEEL FAN AND MOTOR

designed and built for the steel industries

Siemens motors and controls and Howden fans bring together leading-edge technologies to create fans that far outstrip their competitors in both specification and manufacture. Engineered specifically to meet the challenge of the steel industry, each fan installed is custom designed and built to the most demanding standards.
High efficiency motors
The motors and control systems are made by Siemens, using a high power density, compact construction that reduces the size and weight of the unit without compromising power. Exceptional efficiency and cooling reduces operating costs, and the VPI Micalastic high-voltage insulation adds superb reliability over an extended lifetime.

Straightforward installation and servicing
Many of the features which make the fans uniquely suitable for the steel industry are the result of decades of experience and innovation. The modular cooling system allows easy integration into any pre-existing plant configuration. The horizontal heat exchanger reduces the height required for installation. The covers of the equipment are completely decoupled from the electrical connections, providing ease of installation and servicing.

Low maintenance and a high level of control
The control system includes high-voltage switchgear and a high-efficiency brushless main drive motor which requires very little maintenance. The Siemens starting converter limits the start-up current, preventing the adverse effects on the line supply which can otherwise be caused when starting large sinter fans. A password-protected operator display panel monitors the automatic start-up sequence, presents the status of the lubrication, temperature and coolant, and provides a range of warnings and alarms.

Powerful airflow with low noise
The fan itself uses low curvature blades with a high output angle, developed through a process of finite stress analysis and proven to provide higher efficiency and superb reliability, as well as reduced noise levels, keeping operating noise well within the strictest health and safety parameters. The high strength, low alloy materials used in the construction offer wide safety margins, and the impellers are meticulously balanced both statically and dynamically before they leave the factory.

Designed for the future
The centreplate and sideplate are designed for rigidity and resistance to stress, and the whole casing is stiffened to eliminate vibration and centrally supported so that balanced expansion and optimum clearances are maintained across the whole temperature range. The critical speed is well in excess of the normal running speed, and the impeller blades are protected by renewable liners which are easily replaced on-site without welding, to maximise the life of the unit.

Setting new standards for the industry
All fans, motors and control packages are produced in the most modern manufacturing facilities in the world. They meet all relevant international standards, and are fully model tested and commissioned by specialists.
Six generations of success
For Siemens, the co-operation began in 1872 with the first pointer telegraph to be installed in China. Over the subsequent 132 years, Siemens have continually contributed state of the art technology and displayed a real commitment to building up their research and development facilities in the People’s Republic. Personnel training and developing local expertise is an important part of the company’s philosophy in China. It has also become involved in a range of educational, environmental and poverty relief programmes.

Siemens now has 26 regional offices, more than 40 operating companies and a workforce of over 21,000 people in China. It is one of the largest foreign-invested employers in the country.

Part of the growth of Chinese steel
Howden’s links with China go back over 75 years, and include the design and supply of fans for the Chinese steel industry since the early 1970s. Through the 1980s, Howden designed and manufactured axial and centrifugal fans for power stations in China: in Yuan Bao Shan in Mongolia, it installed the largest centrifugal draught fan that it had supplied anywhere in the world up to that time.

To consolidate Howden’s partnerships with the People’s Republic, Howden Hua was formed in 1994 as a joint venture with two local corporations. The company now has a major manufacturing facility in Shandong Weihai as well as offices in Beijing, Shanghai, Guangzhou, Xian and Wuhan. Howden Hua is now the leading supplier of fans and air preheaters for cement and steel manufacturing and tunnel ventilation in China.

Howden Hua is an equal partner within the Howden Group, and has full access to Howden’s state-of-the-art design and manufacturing technology across the globe.

Both Siemens and Howden have a long and proven track record of successful operations in China.
A long-standing relationship with China, based on solid engineering and mutual respect, has been fundamental to the growth of both Siemens and Howden. The partnership between the two companies will expand still further the technology and the service that we can offer to the People’s Republic.

Large Howden Sinter Fans – China

<table>
<thead>
<tr>
<th>Location</th>
<th>Flow Rate (m³/min)</th>
<th>Pressure (kPa)</th>
<th>Motor Capacity (kW)</th>
<th>Order Year</th>
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<tr>
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<td>21600</td>
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<td>16.5</td>
<td>6500</td>
<td>2002</td>
</tr>
</tbody>
</table>

Prior to 2000 sinter fans were installed in Wuhan Iron & Steel, Baosteel (Phase II + Phase III) and Benxi Iron & Steel, Anshan Iron & Steel and Handan Iron and Steel.

Personnel training and developing local expertise is an important part of the company’s philosophy in China.
For further information on Howden or Siemens services or to discuss any specific technical issue, please contact either company at the addresses provided below.