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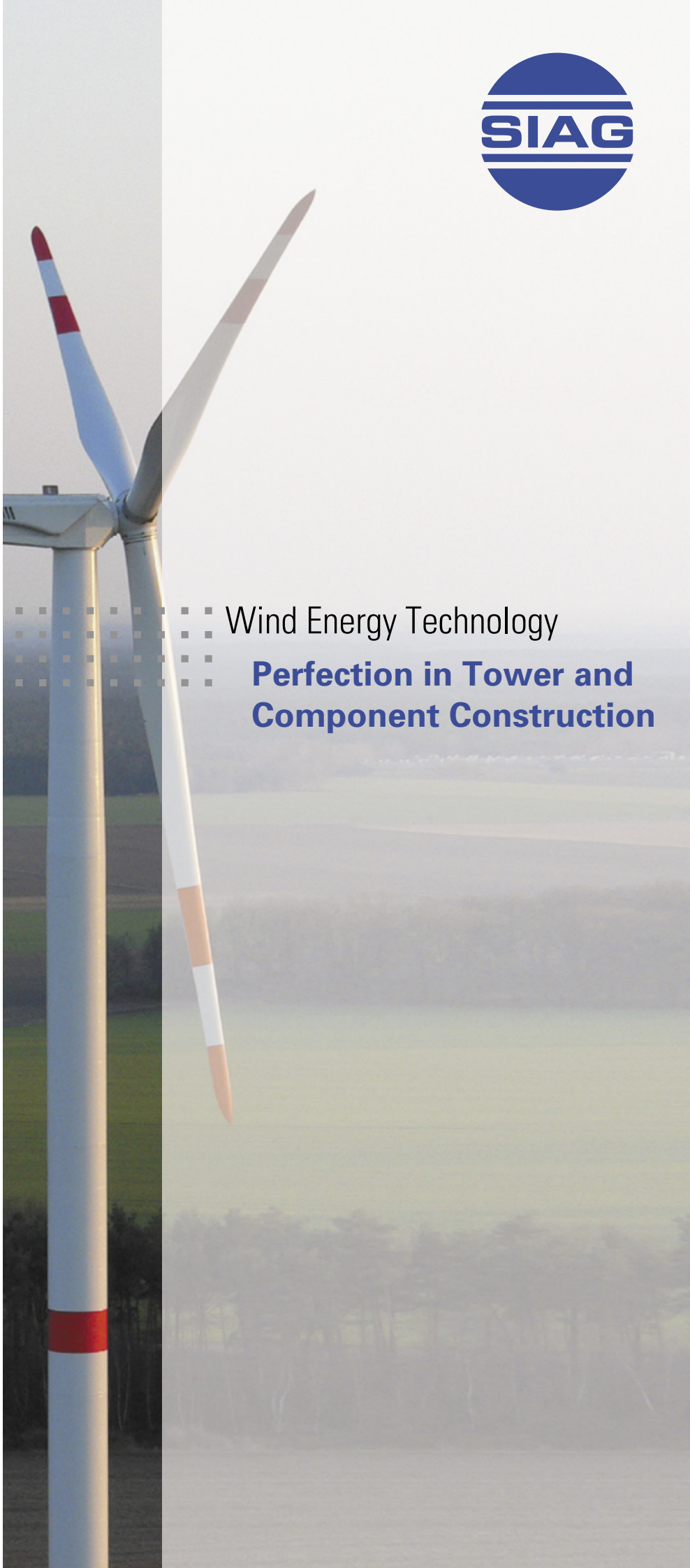


Wind Energy Technology

Perfection in Tower and Component Construction

EXPERIENCE IN STEEL

SIAG headquarters
in Dernbach

The SIAG-GROUP
Experience in Steel

Steel is the main strength of SIAG Group's business units.

In addition to its Dernbach headquarters, SIAG has nine global subsidiaries and a staff of over 1,100.

SIAG's vast experience, innovative concepts, and high-quality products have made it a leading supplier of steel construction for power plant producers. The company's business units include:

- Wind energy technology
- Steel construction
- Mechanical engineering

SIAG combines the benefits of being a medium-sized industrial company and the effectiveness of market leadership. Our flat hierarchies enable us to respond quickly to new market requirements. Advanced production methods help us execute creative and economically efficient applications that take advantage of the versatility of steel.

Each year, our group uses more than 100,000 tons of steel to build complex designs for industry and for bridge, plant, container, and tower construction, including related components.

Our various divisions have what it takes to develop and grow further, to secure and create jobs and apprenticeship positions. In addition to our expertise in steel components, our customers benefit from the know-how we have developed throughout our group.

As a result of our substantial experience in working with steel, we have provided in-depth, proficient advice to our customers for many years, ensuring smooth project handling right through to final assembly. Our customer-focused services together with our continuously enhancing quality assurance system give us a competitive edge, now and into the future.

We see our customers as partners; we fulfil our promises and we are happy to demonstrate our proficiency.

As a one-stop shop for steel and plant construction and a supplier to the wind energy technology industry, we are always committed to high performance and to successfully meeting our own and our clients' challenges!

Energy
of the Future

Over the past few years, wind energy technology has become a high-growth industry. In the light of the global increase in energy prices and major environmental implications, there is growing demand for alternative energy sources which use resources efficiently and contribute to independence from commodity markets. According to forecasts, by 2020 Germany and Europe will meet as much as 30% of their energy requirements with wind energy. Globally, wind energy is on the rise.

In order to serve the needs of the growing global wind energy industry, we are now establishing production sites in Egypt (with production scheduled to start in 2009) and in North America.

SIAG displays commitment and imagination in order to comply with increasing demand and the requirements of plant manufacturers. As a result, SIAG has grown to become one of the leading independent suppliers to the wind energy technology industry. At four plants across Europe, the company achieves an annual output of more than 900 tubular steel towers and over 450 main frames/ generator frames and components.

Tower segment conservation, Finsterwalde

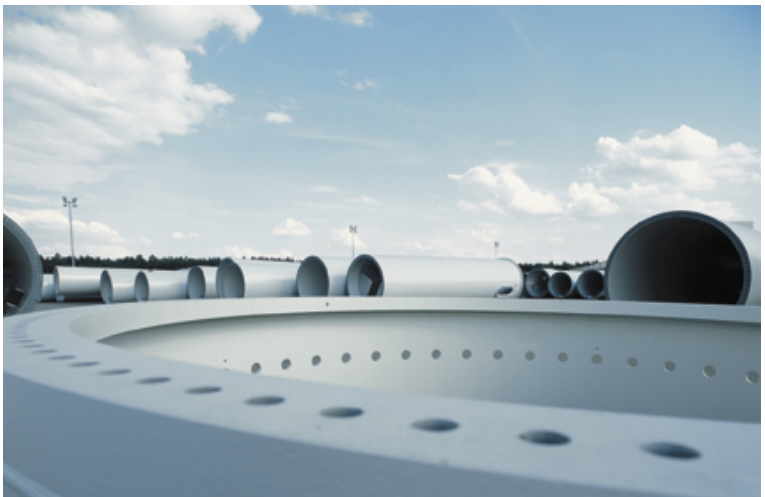
Tubular steel towers
Shaping the future in steel

Today the SIAG Group runs production sites for tubular steel towers in Germany, the Czech Republic and France. The group is currently developing its largest tubular power plant in Ain Sokhna, Egypt.

At our plants, we manufacture tubular steel towers according to customers' requirements, up to 125 m in height, with a maximum diameter of 6 m and a unit weight up to 100 tons. With our efficient submerged arc welding machines for multiple wire technology, we have Europe's most advanced production facilities.

The towers are painted and coated in line with customers' specifications and can be provided with the highest class corrosion protection. Quality control is the basis of our work and is a major cornerstone of high quality conservation.

Our X-ray, US and surface crack detection tests ensure the quality of our tubular steel towers, thereby helping to optimize service life, corrosion resistance, and economic efficiency.



Tower segment storage prior to transport, Finsterwalde

Our entire production process is overseen by our quality management system. In-house quality engineers as well as independent testing institutes ensure the execution and continuous documentation of tests and measurements. The results are evaluated by our own experts and external specialists. Each tower is submitted to rigorous final inspection before it is ready to be shipped to its destination anywhere in the world.

Even after delivery of the towers, we continue to support our customers with our comprehensive service. All of our production sites hold multiple certifications.

Tubular steel tower construction sites:

- Leipzig, Germany
- Finsterwalde, Germany
- Le Creusot, France
- Chrudim, Czech Republic
- Ain Sokhna, Egypt

Quality control of complete segments, Leipzig

Product Range
Completion

The addition of the Mechanical Engineering Unit has allowed us to expand the range of our wind energy technology products to include main frames, generator frames, and all of the steel and aluminium components required for tubular tower construction, e.g., platforms, handrails, cable ducts, stairs, and other add-on parts. This makes SIAG a one-stop shop for all of the steel and aluminium parts needed for wind energy plants.

In 2008, our annual main frame and generator frame production capacity was 1,000 units. The expansion of existing production sites and development of new facilities in Germany allow us to consistently increase capacity. That being said, we are already a leading manufacturer of mechanically processed dynamically loaded steel and welding constructions. We currently manufacture main frames that are up to 12 m long and 6 m wide with a maximum unit weight of 60 tons. Mechanical finishing can be realized for a maximum length of 8,000 mm and a maximum width/height of 4,000 mm in one single clamping operation. We can apply any type of paint, e.g., paints made to meet offshore criteria using our conservation plant technology. All mechanically processed surfaces, threads, and drill holes have effective corrosion protection. All sheets are shot-blasted to SA 2.5 and cut on sophisticated flame cutters, including weld seam preparation. Sheet restamping is used to ensure the traceability of each component.

We use only welding technology from reputable manufacturers in order to ensure quality at every production phase. Non-destructive testing is provided by an external accredited organization. Our place in the industry speaks to the quality of our work: we serve every established wind energy plant manufacturer.

Main frame production, Chrudim, Czech Republic

Our experience plays a particularly critical role in the prototyping process, and we bring our expertise to our customers already in the planning phase.

At our Ruhland site, technical and organizational requirements for the production of 5 MW class main frames are being established.

We are currently producing main frames, generator frames, and built-in and add-on parts at five european sites. At the moment we are establishing a production site in South Asia.

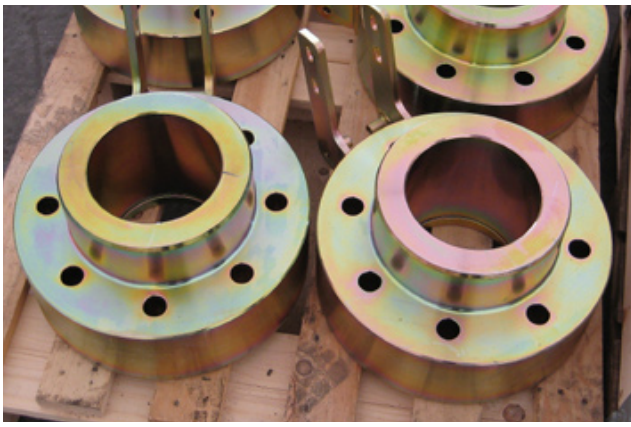
Our purchasing department has access to all of the suppliers of the sheets that are required for main frame and generator frame production. We reach the best possible price while ensuring supplier quality for the benefit of our customers. On request, our products are delivered customs-free and carriage paid across Europe to our clients' assembly sites. Top priority is placed on maximum delivery reliability.

SIAG Maschinenbau GmbH supplies machine components to suit dynamic loads, including machine bodies, machine frames, press frames, chassis, and machine components for the mining industry. SIAG has a long track record in this sector as well. The first main frames were manufactured in Chrudim (CZ) in 2000. Before, the factory's activities were focused on the production of components for mining equipment that can handle high dynamic loads (i.e., excavator arms weighing up to 200 tons).

We hold manufacturer's certification for welding steel constructions to DIN 18800 part 7, class E (dynamic range).

Furthermore, in 2007 we were certified by TÜV to EN ISO 9001.

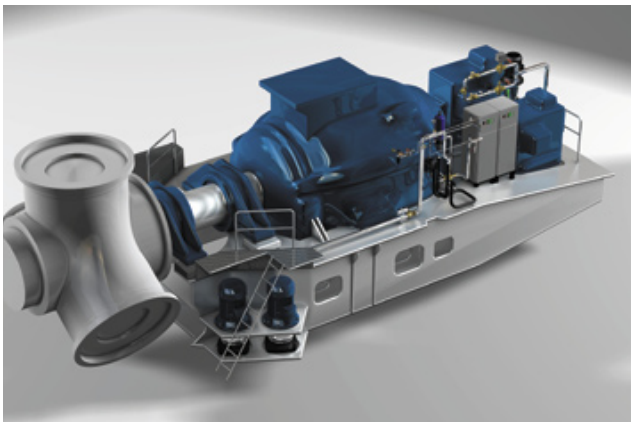
Welding a main frame, Chrudim



Rotor lock components, Košťany

Production locations for machine construction:

- Großräschen, Germany
- Leipzig, Germany
- Ruhland, Germany
- Košťany, Czech Republic
- Chrudim, Czech Republic



3D Illustration of a SIAG main frame

Based around
Quality

For us at SIAG, building trust-based cooperation and providing excellent customer service through cutting-edge technology and high quality standards are key. The know-how of our engineers and technicians is valued by plant manufacturers in Germany and around the world. Our certified quality management systems, which meet all production and customer-related industry standards, complete our range of expertise.

We offer customized advice and provide expert project implementation to meet individual requirements, thereby ensuring that our customers get the best value in terms of the tower design. Thanks to our technical, personnel and space capacities, we are able to offer series production and designs of any size.

Certifications:
DIN 18800-7
DIN 4133 dyn
ENISO 3834-2
DIN EN ISO 9001:2000

SIAG
Tube & Tower GmbH,
Leipzig

Our Sites

Development and expansion

Our strategy for attaining market leadership by providing more customer benefits and seizing the opportunities presented by globalization has proven to be effective, and we expect it to continue providing sustainable business success.

In the future, we will strengthen our export business, serve offshore wind energy markets and make a strong contribution to the repowering segment. Furthermore, we are seeking strategic alliances with wind energy plant manufacturers in order to supply towers to growth markets.

Ever more countries are becoming receptive to regenerative resources, mainly wind energy. The next step will be to establish more production sites to further develop both the European and international markets. The establishment of production facilities in Europe, North Africa and North America is currently moving forward and is one of SIAG's major strategic goals. In Egypt, we are building one of the world's largest tubular tower plants. To our customers, this means reduced freight charges and the possibility of having their components produced locally.

We are ready to meet the challenges of a future-oriented market.