Fabrication
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Quality produced in-house

We fabricate piping systems and components for power plant construction, industrial and plant construction, offshore wind farms and pipelines. With our mechanical technology equipment for inductive and cold bending, heat treatment, cutting and welding tasks as well as mechanical processing at Finow Rohrsysteme GmbH, we cover all market requirements.

We have many years of experience in processing high-alloyed steel and stainless steel. In our in-house welding and testing technology department, highly trained welding engineers and material specialists use state-of-the-art welding, bending and testing processes that guarantee top quality, adherence to deadlines and efficiency when we complete production orders.
Our solutions

Your reliable partner for demanding plant and pipeline construction projects

We specialise in piping and spool fabrication, steel construction manufacturing and custom designs. Our facilities in Eberswalde and Haiming cover all prefabrication requirements for power plant construction, industrial and plant construction, offshore wind farms and pipelines.

Our range of services includes pressure parts and modules, inductive bends, cold pipe bends, shaped parts, U-bends and power plant components.

Our production facilities are equipped with state-of-the-art technical equipment and machines. That includes bending machines, annealing ovens, boring machines, plasma, welding and preservation plants. With our production technology know-how we are able to process the latest materials made of high-alloyed steels, nickel-based alloys and stainless steels for pressure, temperature and corrosion-stressed piping systems.

The Kraftanlagen Group is a versatile partner for industry and the energy sector. We provide our customers with solutions from a single source that cover the entire life cycle of plant engineering. Fabrication is an elementary part of our value chain.

Pipes for a coke oven gas line in the Duisburg-Huckingen plant of Hüttenwerke Krupp Mannesmann are blasted after annealing, preserved and coated (first with a grey primer). The final coating is subsequently applied in multiple steps.

Kraftanlagen Group
Value Chain

Research & Development
Concept, Project Planning & Engineering
Procurement, Supply & Fabrication
Construction & Installation
Commissioning
Maintenance & Service
Decommissioning & Dismantling

- Inductive and cold bending
- Heat treatment
- Mechanical processing
- Welding
- Blasting
- Preserving
- Material procurement
Jackets
Using an inductive bending process, we are fabricating so-called J-pipes, which are J-shaped pipes with different diameters and wall strengths for jackets. You can find the parameters of our bending machines on page 9 of this brochure. J-pipes are used to protect the cables that lead from the rotor to the bottom of the ocean.

Transition pieces
For transition pieces, we are also fabricating components for maintenance platforms and jetties. Our bent pipelines and components make expensive welding seams unnecessary and also extend the service life of plants.

Renewable energies

Pipe bending and components for offshore wind farms

In our “Renewable energies” business segment, we are a service provider for steel construction and offshore wind power plants. We are specialising in parts that are used in jacket foundations, transition pieces and substations.

Borkum Riffgrund 2 OWF

The offshore wind farm with a total capacity of about 450 MW will feature the largest wind power plants in the German North Sea – 56 8 MW-class turbines with a rotor diameter of 164 m. It will produce enough CO₂-free power to cover the annual consumption of approximately 460,000 German households. We take on the demanding inductive bending for the J-pipes that we supply.

Diameter and wall strength: 419 mm x 10 mm
Bending radius: 2,700 mm
Length of prefabricated spools: up to 25 m
Pipelines and spools

Excellence in every production step

Parts fabricated by Kraftanlagen stand for top quality and they are ready to deliver a top performance in power plants and industrial plants. With our great experience and the use of state-of-the-art technologies, we have mastered the entire fabrication process. Inductive bending, annealing, mechanical processing, welding, blasting and preserving.

Inductive bending
Thanks to the inductive bending process, we can fabricate piping systems with bends that are as strong and durable as straight spools. This enables the precisely dimensioned prefabrication of complex piping systems in the plant. This allows the creation of spool systems without weld seams. Using two induction bending machines, we can bend pipes with a diameter of up to 1,220 mm or wall thickness of up to 120 mm in a free-form bending process and without an inner mandrel.

Post weld heat treatment
We have an array of stationary and mobile heat treatment systems for normalisation annealing, solution annealing, tempering and stress-free annealing. This includes two program-controlled natural gas heated car bottom annealing furnaces with the following dimensions and temperatures:

<table>
<thead>
<tr>
<th>Post weld heat treatment</th>
<th>PB-Special</th>
<th>PB-1200R</th>
</tr>
</thead>
<tbody>
<tr>
<td>furnace 1</td>
<td>furnace 2</td>
<td>furnace 1</td>
</tr>
<tr>
<td>max. temperature</td>
<td>1,200°C with ΔT = +5 K</td>
<td>1,200°C with ΔT = +5 K</td>
</tr>
<tr>
<td>max. length</td>
<td>3.2 m</td>
<td>9.8 m</td>
</tr>
<tr>
<td>max. width</td>
<td>6.3 m</td>
<td>6.3 m</td>
</tr>
<tr>
<td>max. height</td>
<td>4.3 m</td>
<td>4.3 m</td>
</tr>
<tr>
<td>batch mass</td>
<td>10 t</td>
<td>10 t</td>
</tr>
</tbody>
</table>

Performance parameters of the induction bending machines:

<table>
<thead>
<tr>
<th>Machine</th>
<th>PB-Special</th>
<th>PB-1200R</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. length</td>
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<td>max. height</td>
<td>4.3 m</td>
<td>4.3 m</td>
</tr>
<tr>
<td>batch mass</td>
<td>10 t</td>
<td>10 t</td>
</tr>
<tr>
<td>max. feed force</td>
<td>450 kN</td>
<td>1,790 (2,000) kN</td>
</tr>
<tr>
<td>max. bending moment</td>
<td>350 kN</td>
<td>3,000 kN</td>
</tr>
<tr>
<td>front clamping length</td>
<td>460 mm</td>
<td>1,145 mm</td>
</tr>
<tr>
<td>remaining length</td>
<td>1,145 mm</td>
<td>2,350 mm</td>
</tr>
</tbody>
</table>

Our systems can use a free-form inductive bending process without an inner mandrel.
The use of modules shortens the installation time and costs since they only have to be set up and connected at the site of operation.

The modules mainly consist of the steel construction (base frame with supports, platforms, ladders, gratings, railings), the components, such as furnaces, valves and fittings, control valves and instruments, piping systems and electric, instrumentation and control technology (EI&C).

Heavy transports made easy
We are linked to the motorway network via the A11 and have our own access to the rail network. A direct link to the waterways network via the Oder-Havel Canal connects us to the overseas harbours in Hamburg and Szczecin giving us access to the North Sea and the Baltic Sea.

Completely prefabricated plant assemblies or components

Characteristic of module production is a very high degree of prefabrication to minimise installation activity on the construction site or in the plant.

Heavyweights for the Nord Stream gas pipeline
Engineering, fabrication and installation of two heating modules by the Kraftanlagen Group complete with steel construction, pipeline and valve installation as well as EI&C technology.

Our scope of services

| Steel construction | Engineering, fabrication, corrosion protection, installation, documentation |
| Components         | Installation, documentation                                                   |
| Pipelines          | Fabrication, tests, corrosion protection, installation, documentation        |
| EI&C technology    | Fabrication, installation, tests, documentation                              |

Total weight: 2 x 90 t
Construction period: 12 weeks
Pressure parts

Staying ahead thanks to prefabrication

We produce pressure parts and components for different applications such as heat recovery steam generators, shaped parts, headers and distributors for plant and power plant construction.

All work is based on current national as well as international regulations (ASME, DIN, EN etc.). We process all customary materials in piping and plant construction. We carry out post weld heat treatments and tests, including the obligatory pressure test, with our own personnel.

Range of services pressure part fabrication

- Spiral coils
- Furnace pipework
- Headers and distributors
- Connection lines between heating surfaces
- U-bends
- Header suspension, header suspensions
- Heat recovery steam generator
- Extrusions
- Shaped parts

U-bends

We produce U-bends in different pitches at a bend angle of 180°. Manufacture is in the materials demanded and available die dimensions as per the customer requirements.

Pipe extrusions

We fabricate custom shaped parts for special applications. That includes pipe extrusions (headers) and extruded T-pipes.

Shaped parts

Shaped parts are produced by welding or hot forming pipes or by machining out of solid matter.

Heat recovery steam generator for caprolactam plant, Leuna XI

We fabricate heating surfaces and complete pressure parts for NH₃ heat recovery steam generators for process steam extraction in the chemical and agrochemical industries.

Scope of services in Leuna: wall tubing and cross-bracing production, container installation including bundles and gauze clamping device.

Total weight: approx. 50 t

Materials: P235GH, 16Mo3, Alloy 800
Quality assurance

Safety always comes first

Our fabrication adheres to international norms, standards and regulations such as ASME and EN. During and after fabrication we subject our products to stringent testing.

We are using the latest testing and inspection processes for destructive and non-destructive material examinations. We are conducting quality assurance with our own personnel according to national and international standards such as ASME, PED-Code (EN standards), DIN standards, AD 2000 as well as safety technology related KTA rules.

With our own material testing laboratory, we are very quickly able to introduce new processes and materials into production. We are also offering destructive and non-destructive examinations at weld seams, basic materials, semi-finished and finished products as an individual service.

Destructive tests
- Tensile tests (hot tensile tests)
- Charpy impact tests
- Hardness tests
- Metallography
- Ring expanding test/ring folding test
- Corrosion testing (IH test, Huey test etc.)
- Analysis of chemical composition

Service life monitoring/damage analysis
- Examination of heat treatment or material condition
- Routine examinations
- Examinations on all design materials and welded joints

Non-destructive tests
- Surface crack examinations (MT and PT)
- Radiographic tests
- Ultrasound tests
- Mobile hardness tests
- Endoscopy
- Layer thickness determination
- Exchange testing
- Roughness measurement on surfaces
- Dimension check using 3D coordinate measurement technology

Capacities

Ready for all challenges

What distinguishes us: well-trained and experienced employees, state-of-the-art machinery and an optimal infrastructure.

An overview of our capacities

- Shop floor cranes: 2 x 5 t, 2 x 8 t, 1 x 12.5 t
- 2 induction bending machines for pipes with diameters of up to 1,220 mm and wall thicknesses of up to 120 mm
- 2 cold bending machines for pipes with diameters of up to 168 3 mm
- CNC plasma cutting system for pipes with a length of up to 12 m
- Welding: UP plants Da (OD) 150-866 mm, Da (OD) 600-1,800 mm, incl. UP nozzle welds
- Additional processes: Tungsten inert gas (Tig), Gas metal arc welding (GMAW), Metal inert gas (MIG), Manual sub arc welding (SMAW), pulse welding
- U-bends with leg lengths of approx 200 mm to 1,000 m
- Total area of production facilities: 145,000 m²

Pipe cut to the desired length using a plasma cutting system are awaiting their transport.

Pipe cut to the desired length using a plasma cutting system are awaiting their transport.

Production facility Finow/Eberswalde. The revolving tower crane (up to 10 t) covers a storage area of 7,000 m².
Product ranges of the Kraftanlagen Group

Energy and power plant technology
Decentralised power generation
Underground piping systems
Nuclear technology
Industrial plants
Utility services
Fire protection
Engineering
Fabrication
Welding and testing technology

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