YOUR EFFICIENCY PARTNER

THROUGHOUT THE WATER-STEAM CYCLE – AN UNRIVALLED SERVICE OFFERING FOR THE POWER, OIL & GAS, CHEMICAL AND PROCESS INDUSTRIES.

ASSET LIFECYCLE INTEGRITY PARTNER
DEDICATED TO CONTINUITY

www.storktechnicalservices.com
From concept through to execution, we help our customers to maximise profitability, reduce risk, assure safety and improve their environmental performance. With 14,500 employees worldwide, we provide innovative solutions by integrating both thinking and doing in the areas of asset integrity, engineering, construction, maintenance, repair, relocations, consultancy and other related service areas.

Throughout the water-steam cycle, our unique combination of expertise and experience is in:

- Assess
- Inspect
- Engineering
- Repair
- Maintenance
- Modification
- Construction

This portfolio of proven services enables us to not only offer major cost benefits, but also to provide dedicated support across all business critical components and throughout the asset lifecycle.

STORK TECHNICAL SERVICES IS A WORLD CLASS ASSET INTEGRITY MANAGEMENT COMPANY DEDICATED TO HELPING OUR CLIENTS DELIVER ENHANCED PERFORMANCE IN THE OIL & GAS, CHEMICAL, POWER AND OTHER MAJOR INDUSTRIES.
At Stork Technical Services, we understand the many challenges faced today by the power and process industries.

The need to reduce operational costs, maximise uptime, and optimise both maintenance and energy efficiency, all combine to put increasing pressure on asset owners and operators. Add to this, the fact that assets are increasingly being used for longer than they were originally designed for – it is clear that there is a need for smarter solutions to deliver greater efficiencies and extend asset life.

As the leading experts in the water-steam cycle, we provide these smarter solutions. We combine our long track record as an original equipment manufacturer with in-depth process knowledge and excellent technical capabilities to help customers in the global power and process industries build, maintain and optimise their production facilities.

Today we work with power and process industry operators – and EPC contractors – from Europe and the UK to the Americas, Africa, Caspian, Middle East and Asia Pacific.

With our unrivalled portfolio of assess, inspect, repair, maintenance and construction services, we partner with our clients and support them to:

- Reduce operational costs through improved efficiencies and processes.
- Reduce downtime through integrated repair, modification, condition monitoring and maintenance activities.
- Reduce capital expenditure by supplying unique but well proven deaerating and burner solutions.
- Improve energy efficiency by delivering essential upgrades and modifications.
- Improve availability by retrofitting burners, retrofitting tray-type deaerators, boilers, condensers and heat exchangers.
- Reduce emissions by retrofitting combustion systems and waste-heat utilisation systems.
- Develop customised solutions in partnership with our R&D department.
- Deliver fast-track construction by engineering and fabricating essential equipment in-house.
Our range of services
Stork Technical Services has decades of experience in engineering, installing and maintaining business critical equipment and processes throughout the water-steam cycle. Our business originally started in boiler manufacturing and our boilers are still running all over the world!

Today we offer our clients a comprehensive range of services:

- Designing and engineering products.
- Concepts for new constructions.
- Efficiency upgrades.
- Availability improvements on the back of retrofit.
- Modification projects.
**Boilers**

By analysing your current process and historical failure data we can reverse engineer your boiler, pinpointing critical parts in the existing design. We can re-engineer and manufacture pressure parts for your existing installation including membrane panels, superheaters, evaporators, and economiser bundles. With this approach we can optimise the performance of your boiler and minimise downtime. We also design and manufacture high pressure package watertube boilers for special purposes e.g. biomass, waste gas and multi-fuel firing. We have an excellent track record as a designer of complete boiler installations for power stations and industrial boilers – developed by our engineers to our client’s specific demands.

**Burners**

We design and manufacture low NOx burners and combustion systems for several fuel types and can help you to reduce NOx emissions. Our burners are appropriate for a wide range of fuel compositions, solid, both liquid and gaseous fuels. We have two application types – direct fired and supplementary fired burners for maximum efficiency – and our technology can be applied to power station boilers, industrial boilers, waste heat recovery boilers and as retrofit solutions to reduce NOx.

**Deaerators**

The unique Stork Spray Type Deaerator combines the deaerator and feedwater tank into one vessel. Stork offers many deaerating solutions such as pressurised deaerators, vacuum deaerators, internal drum deaerators and even deaeration in air cooled condensers or water cooled condensers. Indeed, many decades of experience have given our Stork Spray Type Deaerator a unique, market leading position. The patented single shell design is used world-wide in power plants and industrial installations. It not only offers easy installation for horizontal or vertical application, but also low capital expenditure (capex) and operational expenditure (opex) in combination with high reliability.

**Gears**

We offer high quality revision and manufacturing for (custom-build) gear boxes and gear couplings. We also provide reverse engineering services to help improve performance and efficiency. Our services cover all brands of gearboxes for all purposes. We offer a complete range of gearbox services making use of innovative technologies, state-of-the-art engineering facilities and extensive gearbox know-how. Over the years, we have established a reputation for combining quality with unparalleled speed. We offer worldwide support 24 hours a day. We work in continuous shifts 7 days a week, always providing our customers with the fastest gearbox repair.

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Generators
Decades of experience with large and customised machines guarantee our high degree of know-how in the field of Hydro- and Turbo-Generators (including H2-cooled machines). You can take advantage of our optimised factory equipment and technical specialists, available for comprehensive servicing of almost all sizes and manufacturers of machines up to 900 MVA. We offer specialist expertise in rewinding rotors and stators and in the manufacture of Roebel bars and coils.

Steam turbines
Our specialist services for steam turbines cover revisions and overhauls including re-engineering of spare parts and building and/or programming control and condition monitoring systems. Alongside revisions and overhauls, our other services include boroscope inspections, vibrations measurements, commissioning, troubleshooting and call-outs. In every instance, we provide frequent management reports together with risk analyses on spare parts and scope of works to ensure higher availability and reliability.

Condensors
With our extensive experience, we are able to perform maintenance, retubing & emergency repairs on all types of steam surface condensers. Detailed process knowledge and high-tech simulation tools help us to validate and optimise the design during tube replacement and upgrades. Our services include cleaning, inspection, re-tubing, performance calculations, lifetime assessments, repairs and engineered upgrades. Condensors of all sizes up to over 1GW cooling capacity are maintained by our experts. Specialised tooling ensures minimal turn-around time on all works whether on-site or in our shop.

Turnkey installations
Our in-depth process knowledge and excellent technical capabilities enable us to undertake a wide range of turnkey installations from complete CHP installations through to waste-heat recovery and waste to energy installations. We provide start-up and commissioning assistance and established asset management expertise to help you from project development, concept and basic engineering through to delivery of the complete installation.
The best workforce within a variety of technical disciplines

State of the art production and test facilities, own R&D department

Quality certifications

Independent service supplier

Original Equipment Manufacturer

Uncompromising safety

Complete flexibility to meet your needs

Experienced and certified project management

Global player

Failure rate

Operating life

Working with us you benefit from

www.storktechnicalservices.com
OUR IN-DEPTH PROCESS KNOWLEDGE AND CAPABILITIES HELP SOLVE THE CHALLENGES YOU FACE THROUGHOUT THE WATER-STEAM CYCLE.

With our extensive portfolio of assess, inspect, repair, maintenance and construction services, we partner with our clients for the long term.

We work hard to understand the challenges you face, and work with you to develop customised solutions that deliver real benefits. Our ultimate goal is to help you to reduce operational costs and maximise uptime. We aim to do this by:

**Improving efficiency through:**
- Modification and optimisation programs.
- Brownfield engineered modification projects.
- Energy system optimisation.
- Boiler upgrades.
- Burner retrofits.
- Deaerator (tray-type) retrofits.
- Organisational improvement.
- Asset management policy.

**Minimising downtime by utilising our:**
- Turnaround experience to minimise tie-in construction lead time during (engineered) modification projects.
- Reversed engineering of turbine blades.
- Component repair service.
- 24/7 boiler service.
- Root cause analyses and improvement projects.
- Organisational improvements.
- Best practices in asset maintenance concepts (criticality analysis, maintenance concept, compliance & integrity, spare parts concept).

**Improving availability through:**
- Engineered and constructed modification projects.
- Boiler, systems and deaerator upgrades.
- Turbine rotor and stator revision and renewal.
- Overall Equipment and Effectiveness (OEE) analyses and improvement projects.
- Best practices in asset maintenance concepts (criticality risk analysis, maintenance concept, compliance & integrity, spare parts concept).

**Reducing emissions by:**
- Retrofitting burners.
- Retrofitting waste-heat utilisation systems.
- Other means such as:
  - Staged Combustion.
  - Flue Gas Recirculation.
  - Selective Non-Catalytic Reduction.

**Increasing energy efficiency by introducing:**
- Waste-heat recovery through engineered and constructed modification projects.

**Delivering flawless construction by:**
- Ensuring integrated project execution through our in-house construction services.
WE DESIGN AND DELIVER INNOVATIVE, CUSTOMISED SOLUTIONS TO IMPROVE YOUR PLANT EFFICIENCY AND EXTEND ASSET LIFE.

We provide forward-thinking, flexible solutions through a broad range of technical services and expert consultancy. We are dedicated to the needs of your company and our solutions will always be tailored to meet your demands.

We understand the business drivers of asset management at power plants. Pressure between cash streams (the so-called dark or spark spread) force power plant operators to improve efficiency at all levels. We can help you to improve the efficiency in your maintenance processes or increase flexibility towards fuel type and process type. We can help define flexibility investments in boiler, turbines and generators due to changed start-stop operations but also the underlying maintenance programs.

Dedicated project management teams work together with our in-house engineering department, and our on-site specialists and technicians, to deliver the best and fastest solution for our customers. We have an uncompromising approach to safety in all our activities. We fully understand that our customers demand the highest availability from their plant and we are dedicated to delivering just that – safely and efficiently.
A PROVEN PROJECT APPROACH

OUR PROVEN PROJECT APPROACH IS DESIGNED TO ADD VALUE FROM THE OUTSET DELIVERING A SOLID FOUNDATION ON WHICH WE CAN BUILD LONG TERM PARTNERSHIPS. IT IS BASED ON THREE KEY OFFERS:

1. We identify the optimal energy solution
   Our engineers will work closely with your process specialists to define the scale and scope of the project. We possess deep knowledge across the entire technical spectrum. Our engineers are experts in the field of energy production from energy system optimisation and waste-heat recovery through to combined heat and power solutions and waste-to-energy solutions. We have excellent experience of working on multidisciplinary assignments, seamlessly welding mechanical engineering, process technology and operating techniques together. Our thinking will help you find the optimal solution.

2. We assess the financial feasibility
   Our proven viability model integrates the technical, commercial and financial aspects of the project. By working closely with you, we can evaluate the feasibility of the project effectively, making sure that there is a sound business case from the outset. We can also assist you to tap directly into a vast network within the investment community helping you to identify the most economical way to realise your energy saving and/or waste reduction goals.

3. We will be your partner for life
   From engineering, installation and commissioning through to long term maintenance, we are here to support you – and to ensure maximum efficiency throughout your operations. For new installations, major equipment upgrades and modifications, shutdowns, and the replacement of equipment, we can perform basic and detailed engineering, as well as project engineering, manufacturing, installation and ongoing servicing.

   We have our own specialist production facilities capable of producing core components. We also undertake general project management as a main contractor. And, of course, we can develop and execute asset management systems, strategies and activities aimed at maintaining the plant in fit-for purpose condition throughout the desired life of those assets.
Safety excellence is at the heart of everything we do. We have a robust safety culture that demands uniform application of outstanding performance and behaviours across all areas of our business.”

Mike Mann
Senior Vice President – Global HSSEQ
Stork Technical Services

Introducing REACH

As a leading support partner, we are committed to delivering world-class safety performance across our global operations.

Stork has adopted REACH to help improve our safety performance and engagement on safety. REACH was originally developed and launched in 2009 by RBG, the company acquired by Stork Technical Services in 2011, where it had a major impact on safety performance evidenced by over 70% reduction in the UK lost time incident frequency rate, and over 60% globally, from 2009 to 2011.

By placing safety unequivocally as our number one priority, REACH helps us to consistently deliver projects to the highest safety standards without compromising quality.

It enables us to improve safety performance through:

- management leadership
- empowering everyone
- improving performance
- sharing information
- recognising improvement
- sustaining improvement

In 2011, REACH was awarded the Safety Leadership Award by Subsea UK and the ‘Outstanding HSE project’ accolade at the 2011 American Chamber of Commerce of Trinidad & Tobago Excellence in HSE Awards.

In 2012 we were presented with an Associate Member Award at the IADC North Sea Chapter’s annual safety awards. We also won the Oil & Gas UK Ideas in Safety Prize.
OUR AIM IS TO BE YOUR ONE PARTNER;
DELIVERING EXPERTISE AND CONTINUITY OF SERVICE THROUGHOUT THE ASSET LIFECYCLE

Our specialist project teams have a broad understanding of the energy production process and in-depth process knowledge of the water-steam cycle. Our certified approach to project management, an uncompromising commitment to safety, and our impressive technical capabilities combine to provide an unrivalled service.

To learn how we can help you to ensure reliable and cost effective performance throughout the water-steam cycle, please e-mail us on processequipment@stork.com or call us on +31 (0)74 240 1724.

We will be delighted to discuss how you can benefit from our experience.