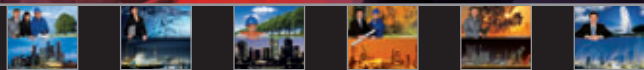


STORK®

Thermatics

>>>>> 005 October 2007



"We don't only think in gas and oil but also in steam and water!"

STORK Thermeq Success in Supplementary Firing Systems

Stork Thermeq is well known world-wide as far as conventional burner systems and burner retrofits are concerned. But our customers were less familiar with the fact that we are also in the market for Supplementary Firing Systems. Time for a change! Our products are greatly improved through development and are able to distinguish themselves on the competitive market as a result of Stork's boiler and combustion know-how. We asked Henk Kamphuis, International Sales Manager since June 2004, to tell us a little more.



What are Supplementary Firing Systems?

Henk Kamphuis: "As most people know, a gas turbine produces electricity by driving a generator. An HRSG (Heat Recovery Steam Generator) and steam turbines are downstream of the gas turbine. Between the gas turbine and the HRSG a Supplementary Firing System is used to provide flexibility of the entire system.

Supplementary Systems are used to compensate for peaks in energy consumption or to meet a particular demand for steam. So they improve the flexibility of the overall power and steam plant. Supplementary firing is also sometimes used as a backup in case the gas turbine fails. These systems can be fuelled with gas or oil,

which is why we have two types of Supplementary Firing Systems: the Inline Grid Burner for gas and the Inline Circular Duct Burner that our customers can fuel with either gas or oil. Oil is used as second fuel in Supplementary Firing Systems mainly outside Europe.

How has the product developed on the market over the last few years?

"It was at the end of the 1970s that developments in Supplementary Firing started, first with an existing type of burner and, from 1995, with two burners specially developed for the market. After having gained more than 25 years of technical and international commercial experience

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New looks at Power Gen Madrid

Once again this year Stork Thermeq presented itself with Stork Turbo Blading, Stork Turbo Services and Stork Gears and Services at Power Gen, the leading exhibition for the power industry in Europe. In addition to making the acquaintance of the familiar services and products, visitors were themselves able to experience the flashing of hot droplets with the Swirlflash demonstration model. Many visitors were amazed by the cooling effect of the 180°C water spray.

In the well-frequented Stork booth Thermeq also presented the new Thermeq-look. The images on the cover of the new line of brochures show the major values held by Thermeq: the people behind the company, the fact that Stork Thermeq takes the natural world into account and the industry in which Stork Thermeq is embedded. Together with new headings this represents a powerful combination that we will see much more of with Thermeq in the future.

Thermatics

Who's who at Stork Thermeq?

An online photo album was placed on Stork Thermeq's website.

A Stork representative's story

This time we spoke with Mr. Alain Mineur of J.Kamps & Co in Weezenbeek-Oppem, Belgium.

Stunning developments in the power market in the years to come.

Together with the university of Enschede we have done a study about this growth and what will be the changes in the power market and the differences in the fuel composition.

>>> STORK Thermeq Success in Supplementary Firing Systems

with another combustion technology company, I joined Stork Thermeq in mid-2004 in order to give a commercial boost to Stork's Supplementary Firing Systems on the market. The process was started up both internally and externally and quickly picked up speed. More and more orders came in. The quality and technology of Stork's Supplementary Firing Systems improved even more and we were successful. Since then we have sold 26 systems to well-known HRSG manufacturers such as Doosan Heavy Industries in Korea, CMI in Belgium, NEM in the Netherlands, Aalborg Engineering in Denmark and to end-users such as Reliance Industries and IFFCO in India. Success was also gained in the megawatts delivered. The quantity rose from 450 megawatts between 1997 and 2004 to 1750 megawatts in the last three years!" End-users in

Singapore, Oman, UAE, Russia, Latvia, Hungary, Algeria and India are now operating with Stork Supplementary Firing Systems.

What explains the success?

"Stork Thermeq not only has dozens of years' experience with burners but also possesses boiler know-how. Stork Thermeq was founded on that know-how in the past. Customers who opt for Stork's Supplementary Firing System from Stork Thermeq also get expertise unrivalled by any other company on the market. We know better than anyone what effect a burner can have on the overall installation. We can discuss the pros and cons with the customer, and advise as to what you need to look out for in order to have a perfectly adjusted installation. Other suppliers of burners are less good at that sort of thing."

What future do you see for Stork Thermeq's Supplementary Firing Systems?

"It looks good: there's no doubt about it. We are well on the way and we continue to make improvements. That's what our customers expect of us. We want to grow by optimising all the cost prices and suchlike - in addition to our technology and service - so that we retain a competitive edge as regards prices. Anyone doing business with us will notice that sort of thing quickly enough. You experience the project know-how gained and the improved technology and efficiency within our company. And we stand for optimum and efficient implementation of projects, from the placing of the order up to and including commissioning and after-sales service. That we can guarantee!"



Heavyweights on exceptional transport

The whole of Hengelo - if not the entire Netherlands - looked on in amazement: the transportation of three deaerators, each 35 metres long, destination a power plant in Saudi Arabia. Each deaerator weights approximately 160 ton and they are the biggest we have ever built at Stork Thermeq. The Wagenborg Nedlift transportation company transported the giants on a special flatbed truck to the port of Hengelo. It was the first time that this vehicle, with its 20 axles and 80 wheels, had been used.

Who's who at Stork Thermeq?

Stork Thermeq

Services News Contact

Contact us!

- Location
- Route description
- Sales Network

future with innovative solutions

Engineering, products & services for boiler systems

The Netherlands | Stork Thermeq | Select Department

- Select Department
- Engineering
- Financial
- HR
- ICT
- Legal
- Management
- Operations
- Purchasing
- Quality
- Sales and Marketing
- Sales and Proposal
- Services

How often has it happened to you? You speak to somebody on the phone at Stork Thermeq, often many times over a lengthy period, and you have no idea what he or she looks like. Not so long ago an online photo album was placed on Stork Thermeq website with photos and business cards of all the company's employees. Come and take a peek at us at www.thermeq.nl under the 'contact us' button. From now on you'll know exactly who you're speaking to!

A Stork representative's story

Stork Thermeq is a worldwide operation. This means that in our daily work we have to deal with people from many cultures and with innumerable cultural differences. So that we can learn more about the ways of doing business in different countries all over the world, we give the word to one of our agents in each issue of Thermatics. This time we spoke with Mr. Alain Mineur of J.Kamps & Co in Weezenbeek-Oppem, Belgium.



How do you go about your work? (meaning contacting clients, offering products) - how do you operate?

"We are Kamps: the Stork representatives in Belgium. Kamps is an industrial company that has specialised in water treatment for over 50 years. This has allowed us to have a wide network of clients and contacts. When we know a person who might have interest in the products we provide, we contact him or her and make an appointment. Then there are two possibilities. The first one is that the customer tells us his needs right away and we discuss the possibilities together. Or we give the customer a presentation about our products - and then sit round the table and discuss the possibilities. We do our best to meet the customer's needs, but if that doesn't work out we help the customer by pointing him towards the right provider.

How do you see Stork Thermeq?

"I have a very positive vision about Stork. From the technical point of view I consider Stork a

very innovative company that creates new and efficient products. Innovation is an important aspect in our business, because the world is changing and some adjustments to products and demands are needed. And that is what Stork Thermeq does. To be ahead in technology with innovative products.

What about the Stork Thermeq products?

"As far as this is concerned I have to say that we are very proud to be a Stork Thermeq agent and provider. We have never had any complaints about their products. We know that

when we offer a Stork product, we are offering quality and guarantee - and this is very important for us. We can simply go to a client and offer any of the Stork products convinced that we are talking about a top-quality product. This means that there are no problems between our customers and us. "

Are there any cultural differences between you and the Dutch?

"I have to say that we don't have any problems doing business with the Stork Thermeq people. However, even though we are neighbouring countries, we do have different cultures. For instance, the Dutch come straight to the point while in Belgium we like having big and wide-ranging conversations first before we talk about business. It is quite funny to see our differences, but after doing business together you get to know their way of working and they ours. So at the end of the day you will have a great business relationship with respect and also with a lot of jokes about our differences on both sides."

Stunning developments in the power market in the years to come.

The power market is rapidly changing and the future is very promising in the years to come. To have a better understanding, we have investigated how the power market will look like until 2030. Together with the university of Enschede we have done a study about this growth and what will be the changes in the power market and the differences in the fuel composition. We have used the Outlook 2006 of the International Energy Agency. A valuable study of the power market which I can recommend to you. I would like to point out some highlights:

- The world generating capacity of power generation will double until 2030.
- The share of biomass will increase with approx. 10 % per year. In 2030 around 30 % of the complete generating capacity in Europe will be derived from renewable sources. The total installed capacity will be 300 to 350 GW.
- China will overtake the US as the world biggest emitter before 2010.
- China alone is responsible for the 39% of the rise in global emissions.
- Developing countries will account for over three quarters of the increase in global CO2.
- Natural gas fired electricity production will double.
- Africa becomes the largest supplier of gas in Europe.
- The world wide coal reserves are approx. 160 years at current production.
- Canadian oil sands production will triple.

If you look to the above issues, you can see that there are a lot of different developments which will absolutely influence you, your customers and your markets. It will be a challenge for equipment manufacturers to be able to produce the massive amount of required equipment. If you would be interested in receiving an abstract of our investigation, please send me an e-mail at gerhard.muggen@stork.com. If you would be interested in sharing ideas and opinions you can give me a call at +31-74-2401701.

Gerhard Muggen

Sales & Marketing Vice-President, Stork Thermeq

Order highlight 2nd quarter 2007



- Uhde Dortmund, Germany: 2 Deaerators for the Eagrium Project Egypt.
- For China, Russia, United Kingdom, Germany, Taiwan and Australia: Several deaerator Licenses.
- Siemens, Germany and Austria: Deaerators for the projects Timelkam Austria, Deir Ali and Marchwood, United Kingdom.
- Foster Wheeler, United Kingdom: Deaerator for Shell Eastern Petroleum, Singapore.
- Twence Hengelo, The Netherlands: Revision of membrane walls.
- Electrabel Kallo, Belgium: Refurbishment of the boiler and replacement of a complete superheater.
- EPZ Borssele, The Netherlands: Supply and replacement of the superheater U-bends of the coalfired powerplant BS12.
- Tractebel Engineering Brussels, Belgium: Modification of the heavy fuel burners to low NOx natural gas burners for a Powerplant in Rodenhulze Belgium.
- Keangnam Enterprise Ltd., Korea: 3 deaerators for the Ambatovy mining project in Madagascar.

Interview with Mr. Morawietz of Bayern Oil

More services, greater MW output and less NOx discharge. These were the aims set by Bayern Oil, one of the big petrochemical companies in Southern Germany which is owned by four shareholders: BP, AGIP, PDVSA, and Ruhr Oel MV. High-quality technology ensured the fulfilment of their wishes. In fact, Bayern Oil installed a SwirlFlash® installation on a frame 5 in 2005. From then on they wanted nothing more. The person involved from the start on the SwirlFlash® project is Mr. Morawietz, responsible for Rotating Equipment of the Bayern Oil plant in Neustadt. He is full of enthusiasm when he talks about it.



What's the performance of the SwirlFlash® installation been up to the present?

Mr. Morawietz: "We were - and still are - very happy with the SwirlFlash® installation. It gives us a lot of flexibility in the summertime. We get the same GT output in the winter (without SwirlFlash®) and summer time (with SwirlFlash®). The SwirlFlash® compensates the GT output performance drop during the summer. The Frame 5 is getting an extra 3 to 3.5 MW output very easily and at the same time the NOx output is going down from 150 to 90 mg / Nm³. The GT is now fired with Propane and Butane and it is expected that 75 mg / Nm³ will be reached when Natural Gas is fired."

What did you earn with the SwirlFlash® installation?

Mr. Morawietz (laughing): "The amount of money we earn is a confidential matter. But I can give you an idea. We were in operation for 3000 hours last year and have 10 million kWh extra available thanks to the extra SwirlFlash® power. Last year we used the SwirlFlash in continuous operation for 3.5 months. The energy is used on the refinery itself and the energy surplus is delivered to the grid."

You did a major inspection some weeks ago. How did your Gas Turbine look?

"It looked good, very good. We did a boroscopic inspection on the compressor blades and the hot parts and we could see no difference compared to use without SwirlFlash®. It seems that the small water droplets technology really works. Continuous use of SwirlFlash® for 3000 hours did not show any erosion on the blades."

Do you have anything else you would like to add to your system?

"In addition to all the benefits, we are now discussing with Stork about upgrading the SwirlFlash® to full automatic operation, to be remote-control operated."

Would you also recommend SwirlFlash® to other GT users?

"Yes, absolutely. The system works fine, output has increased by more than 10% and the NOx emissions have decreased by more than 40%. We are earning a lot of money, improving the environment and adding flexibility to our system. Tell me yourself: who wouldn't recommend it?"

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