

Energising the industry

24 January 2014

Having recently moved into a new factory and offices in Bruchsal, INTEC Energy Systems is utilising all the extra space to the full, as its order book is bulging. Mike Botting visited the new premises to bring this report.

INTEC Energy Systems was founded by Edwin Karrer in 1995, bringing his experience in energy systems and the thermal oil applications business from previous senior positions in the industry.

In those early days, the company specialised in secondary circuits, such as temperature control equipment to regulate the heat input to separate zones of a continuous press, and it worked closely for some time with continuous press maker Dieffenbacher of Eppingen, with whom it still has a good relationship.

Today, INTEC plans, designs, manufactures and supplies systems for industrial process heat generation through gas, oil, or solid fuel firing and "the efficient use of waste heat boilers and heat transfer thermal oil heaters".

Its services start from system concepts, through to production and delivery, including complete turnkey plants, if required; INTEC Rohrtechnik GmbH handles the production side of the business, while INTEC Service GmbH takes responsibility for site management and commissioning of the plants.

The company has also built the world's first hybrid solar/biomass heat and electrical power plant on a commercial scale, near Barcelona, Spain, which was inaugurated in July 2013. That plant generates up to 25MW of electricity by day, using the sun's energy, and 12.5MW by night, using biomass fuel, so it runs 24 hours a day.

"We are always looking for new opportunities like this," said Christian Daniel, sales director at INTEC.

As its business grew rapidly (annual turnover is currently around €25-30m) INTEC began to run out of space at its original location and so bought its current 22,000m² site. It moved into the new factory building in 2011 and the office and warehouse were occupied in January 2013.

A further production hall is under construction and should be ready for occupation in the third quarter of 2014.

Markets include the marine, textile, food, electrical energy and, of course, wood industries, as well as an oil and gas division.

Standing in the yard at the time of my visit was a large silver object that looked a lot like a space shuttle module, but turned out to be part of a 70 tonne thermal oil heater for a palm oil plant in Indonesia (photo below).

"That heater is the biggest we have ever made and one of the largest in the world," said Cornelia Kerber, head of marketing at INTEC. This unit, which will have a 25MW capacity, was in fact only one of three modules for the project.

While that may be a diversion from the panel industry, Ms Kerber pointed out that globally-operating panel manufacturer Kronospan has, in total, 13 gas/oil-fired heaters, with air pre-heater and stack, in three-module vertical design, and said that number is set to rise.

"These units have a very small footprint and are located outdoors, so they don't require a costly building to house them," she explained. "Some panel manufacturers are going further into biomass energy generation now and we are upgrading many systems for panel making companies."

In fact, INTEC is refurbishing Kronospan's energy plant in Chirk, UK and is also currently working on new projects at its factory in Smorgon, Belarus as well as in Egorievsk, Ufa and Mogilev in Russia. Some of these are older plants from other manufacturers, which INTEC is upgrading.

A normal energy plant for a panel mill produces thermal oil, steam and hot gas for the factory's production line and INTEC offers modular systems for all this process-heat supply, adapted to the customer's requirements.

The company has many references in the panel making industry globally, as well as in the other industries which it supplies. For instance, in 2001, INTEC supplied an 11MW energy plant to Phang Nga Parawood, a particleboard manufacturer in Thailand.

The following year, it supplied a 24MW plant to Green Panel particleboard in the same country.

In 2003, INTEC supplied a 16MW plant to Geruco MDF in Vietnam. Coming right up to date in Vietnam, May Forestry has a 28MW energy plant under construction right now. Again in SE Asia, INTEC sold a biomass thermal energy system to HeveaBoard's particleboard line in Malaysia and oil-fired heaters to Miecoco in the same country. A slightly unusual panel factory project came from Segamat MDF, also of Malaysia, which wanted to partially fuel the energy plant with empty palm oil fruit bunch fibres. Capacity there is 17MW.

The company's first order for biomass-fired systems from Kronospan came in 2006, from its Jihlava particleboard and OSB plant in the Czech Republic, and this 31MW unit produces hot oil for several presses on the site, as well as hot gas for the driers. This plant was designed with potential for expansion, if required at a later date. Also in 2006, INTEC supplied a 53MW complete thermal oil, steam and hot gas plant, with the hot gas being for the Schenkmann & Piel drier, at Unopan MDF in Spain - it was then the largest-capacity energy plant INTEC had supplied. This factory has now been bought by Kronospan and the energy plant is in fact being upgraded by INTEC.

The following year, another 53MW plant was supplied to Kastamonu Entegre in Turkey and the plant was commissioned in only 14 months from order - in spite of temperatures on site of -20°C during installation.

Kronospan's plant in Brasov, Romania, bought a 27MW thermal oil capacity plant for its OSB line, while its Strelcze site in Poland purchased one of 26MW capacity. In the Americas, panel factories in the US, Mexico, Brazil and Ecuador have been supplied with INTEC energy plants, as well as customers in North Africa and Iran.

INTEC also offers an air-cooled reciprocating grate optimised for biomass fuel. "Coal-fuelled energy plants employ fluidised bed combustion, so we can cover all requirements," said Mr Daniel.

In fact, INTEC offers various firing systems, from grate firing, from 4 to 75MW; through fluidised bed firing from 2 to 40MW; and dust firing from 3 to 30MW. Typical fuels are fresh and waste wood and bark, with moisture contents up to 200%, veneer peeling waste and residues, MDF and particleboard waste, sanding and sawdust and biomass - from fruit and grain husks to bagasse, straw etc.

For high-calorific-value fuels, the company offers fluidised bed firing. In this system, instead of a grate, the combustion chamber is filled with a bed of inert material, such as sand. Air is blown into the bed from underneath, through nozzles to fluidise the bed. That bed and the combustion chamber are then heated to the fuel ignition temperature and the fuel is then distributed on the bed, where it catches fire. Heating surfaces immersed in an adjacent fluidised bed conduct usable heat out of the bed material. "Our strengths for the wood based panel industry are our profound knowledge of the heating process and how to supply energy to the press, steam to the refiner and gas to the dryer," said Mr Daniel. "Another big advantage is that nothing is 'off the shelf' - everything is tailor-made to the customer's specific needs."

For its global coverage, INTEC has its own offices in Malaysia, Singapore, India and the Netherlands, as well as independent agents representing it in many other countries. "In China, we have a joint venture with a Chinese company to offer complete energy plants in the Asian region," said Mr Daniel. "It is entirely our technology and our Chinese partner makes only the non-critical parts such as the support structure. Thus we maintain our quality standards, but we can offer our customers a more economical solution." INTEC currently has orders to take it up to Summer 2014, so it looks as if it will need that extra production space it is building.

A vertical thermal oil heater at Kronospan, Sebes, with air pre-heater and stack

This is still a family business, with Edwin Karrer at its head. Mr Karrer has two sons, one of whom is already in the business and the other will soon join from university, so it looks set to continue as a family business, with all the stability that promises for the future.

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27MW energy system at Kronospan, Brasov



Coils for a thermal oil heater being made in the Bruchsal factory



One part of a thermal oil heater, bound for Indonesia



Components for a fluidised bed combustion system in the Intec factory



A vertical thermal oil heater at Kronospan, Sebes, with air pre-heater and stack

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