

Kennedy's Confection



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Innovative pasteurization systems

5
LOG

Seeds

Nuts



COLD PRESSED
OIL



BUTTER/
SPREAD



DEFATTED
FLOUR/POWDER



ROASTED
NUTS/SEEDS/....



GROUND
NATURAL BUTTER



PASTEURIZED
NUTS/SEEDS/....

DuyvisWiener
from cocoa to chocolate



London Chocolate Forum attracts
key industry names



Interpack 2017 – an in-depth
show review



We visit Lareka's headquarters in
Eindhoven

Logging peak performance

Making major investments to its test facilities in the Netherlands has paid off for Royal Duyvis Wiener. Neill Barston meets international sales manager Tom Velthuis at Interpack

With a heritage dating back over 130 years, The Royal Duyvis Wiener Group has strived to deliver a wide range of cocoa and chocolate processing innovations during its history.

The business achieved a notable milestone last year in opening a new technology centre, which has enabled extensive product research opportunities for its customers.

Developing such advanced facilities at its headquarters in the Netherlands has pushed its operations to new heights, with greater analysis of production methods and recipes now possible.

As well as its main Dutch site, the company also operates locations in Aachen, Germany, in addition to a base in Brazil catering to the South American market.

Underlining its continued development, the company expanded further in 2012 when Log5 became part of the business, specialising in developing and manufacturing pasteurisation systems for dry products including nuts, grains and seeds.

As Tom Velthuis, international sales manager, explained, the key technology behind its systems has been created to easily integrate with other processes such as roasting within a single operation.

"It's proved a perfect match having nut processing and chocolate processing, as there's a lot of chocolate that contains nuts so it's been a very good thing for us," enthused the senior executive, who explained that the Interpack show had yielded an excellent response to its services, including the Log5 pasteurisation systems.

According to Mr Velthuis, the chance to engage with a diverse range of customers from across the world at last month's trade fair in Dusseldorf proved particularly successful.

He added: "With Interpack being only every three years, it's the biggest show for us and our customers. It's very

"We have found 2016 has been the best year we have ever had, developing cocoa factory facilities which range from single machines through to complete systems."



important, with people coming from all over the world.

"For this year's fair we focused on chocolate processing equipment including machines that can handle around five metric tonnes of cocoa.

"We also invited people to our facilities so that people can actually come and see the machines –many of which are huge in size, so that they can see the processes involved."

He explained that the company had experienced a significant level of growth during the 16 years that he has been with them, including expansion of its bean-to-bar operations which he said were possible on a far more industrial scale than ever before.

Its equipment development portfolio



has also increased – including designing of confectionery machinery such as conches, which meant that it had now become a complete turnkey supplier to its customers.

He added: “Business has been very good for us and we’ve done a lot of work in the past 12 months. We have found 2016 has been the best year we have ever had, developing cocoa factories facilities, which range in size from single machines costing around 13,000 euros, through to developing complete facilities worth around 22 million for a factory.

“As for the rest of 2017, like most years, there are differences between regions. We are doing a lot of business in Turkey in particular, as well as in North

America, which is the major centre for the nut business, where there is an incredible range of products there.”

Log5 System

As Mr Velthuis explained, there had been an especially strong response to its test facilities, which had proved invaluable for its Log5 pasteurisation systems, which he said had been developed to minimise the risks of harmful bacteria including salmonella contaminating products.

The system has now been taken up by several companies including CHS Sunflower seed processing business in America, which engaged with Royal Duyvis in 2015 in the wake of US legislation being introduced following

concerning outbreaks of salmonella.

Log reduction itself is a mathematical term that is applied to show the relative number of live microbes removed from a surface by cleaning process such as those devised by Log5.

In terms of the processes involved, the company said its system’s unique strength is in through treating products with warm, moist air and controlling temperature and humidity and air flow, it was been able to effectively pasteurise the product while maintaining its original characteristics.

The company’s system has been created in a three-stage operation that consists of pre-heating and pasteurisation, which is then followed by a final cooling process.



The Log5 system installed at CHS in America

Tackling bacteria

During the pasteurisation phase, in order to inactivate pathogenic bacteria by damaging the cell walls (at a modest temperature) a certain amount of free water is needed.

The water molecules will vibrate more strongly when heat is applied and this will result in the collapse of the cell wall and inactivation of the bacteria.

If no free water is available, bacteria destruction is very time consuming. 'Water activity' (aw) is an indication of how strongly water is bound to a product.

"Free water" is available for reactions at aw values > 0.65. Most extreme bacteria can grow at aw values > 0.75. During the Log5 pasteurisation process we manipulate the aw value and temperature of the product. Water activity and temperature need to be increased gently to reach ideal pasteurisation conditions.

To maintain the quality of the product, the company pasteurises using conditioned humid air that is mixed with saturated dry steam. The temperature and humidity of this air is

carefully controlled depending on the process phase.

By regulating the product temperature and the air conditions, it is able to control the aw values on the surface of the nut.

Mr Velthuis said: "One of the ways that you can handle such nut processing is through dry roasting, though the main disadvantage with that is that you change the structure of a product in terms of colours and flavours as well – it can inactivate salmonella.

"So the alternative is to put steam on a product – the big advantage of that

is a very high inactivation rate, but you change the properties of the product.

With Log5, we pre-heat the product – then we pasteurise the product and then we cool it that results in minimal change in how the product looks, tastes and smells.

"So we sold a system for processing – after the trials with 200 people and they couldn't pick it out with almond nuts. We also did a trial of raisins and cranberries that also went very well.

"We have delivered the first systems now including one based on sunflower seeds, another walnuts, and another for almonds.

The principle is that we have a tower, there are plates that the products go from top to bottom, and pre-heating goes from the bottom to the top- we almost take all the energy out of the air to heat the product."

According to the company, the benefits of the Log5 system include proven 5-log reduction on nuts and seeds, minimal discernible impact on the original product quality.

"With our Log5 systems we have found that it is possible to double the shelf-life which has been another very good thing indeed."

The company said the process is also excellent for treatment of sensitive products like walnut halves, with no post-drying required, as well as having high energy yield. There is also continuous flow of product, with a process that treats the first item the same as the last.

Other benefits are said to include full traceability due to physical transport from one tray to another, fully automated process, as well as being compact, using little floor space for high capacities and offering a single source supply for the entire line.

The Log5 offers a wide range of capacities from 200 up to 20,000 lb/hr with modular capacity expansion. It also claims high production reliability due to its long experience with counter-current, continuous roasters that operate 24/7, all year round. Integrated solutions can also be supplied for roasting and pasteurisation.

With its roasting systems, there is also complete control over roasting degree (colour, flavour, texture, moisture

content) possible due to counter-current tray air flow. In addition, multiple heating options available (steam, gas, electric, oil).

Mr Velthuis added: "Customers have found it very important that they could not tell that products had been pasteurised, and with our Log5 systems we have found that it is possible to double the shelf-life which has been another very good thing about the system.

"We also do roasting, as well as the whole process of cleaning, grinding to paste, and it is possible to make products such as peanut butter and we're running systems to make a high protein peanut flour, and sesame and almond flour.

"Peanut flour can be used for several things – high protein bars for its good flavour (better than soy) and can also buy powdered peanut butter and this is use in bakery ingredients and for cake flavouring.

"Customers can either come to us with chocolate products with their

cocoa beans to our tech centre and leave with finished chocolate, or come with their nuts to the factory and leave them with a nut paste, chocolate spreads, oils, low-fat high protein power, so we can make all kinds of products so then can they do their own customer trials."

Tom Velthuis of Royal Duyvis at Interpack



The Royal Duyvis Wiener Group Factfile

The company can trace its history back 131 years in the heart of the Dutch cocoa industry, serving leading companies around the world.

1835:

F.B. Lehmann founded in Dresden, since 2010 part of the group

1885:

B.V. Machinefabriek Duyvis was founded

1889:

Wiener B.V. was founded in Amsterdam, since 2004 member of RDW

The Royal Duyvis Wiener Group (RDW) encloses the following companies/ brand names and company history

1947:

Thouet GmbH & Co. KG founded in Aachen, since 2013 part of RDW

2008:

Jafinox was founded in 2008, since 2014 member of the group

2012:

Log5 founded 2010 became part of the company

• Together with the group's customers, it has developed innovative solutions by supplying new and upgrading existing equipment, it optimises its clients' production processes.

• The company also aims to reduce customers'

production costs by saving energy and minimising downtime.

• Its traditional focus is bean to bar processing from cocoa beans to chocolate, as well as roasting and processing from nuts