NEW CORRUGATOR FOR BOARD 24

£7.5 MILLION INVESTMENT IN PLANT AND MACHINERY SEES PRODUCTIVITY LIFT AT PRESTON SITE IN THE UK.

A REPORT BY DANIEL BRUNTON.

Board 24 is one of the UK's leading suppliers of corrugated sheet board. With three dedicated sheet feeding facilities and no fewer than six corrugators, the company is part of the Logson Group. Employing 330 people across the three sites, the company generates in excess of £110 million in sales per annum, (and accounts for well over half of all Logson Group annual sales).

"Our vision is simple," explains Richard McBride, Managing Director. "We want to consistently deliver corrugated sheet board solutions to suit our customers' individual needs. We want to provide unrivalled customer service and quality, all the while taking care of our people, our customers and our local community."

He continues, "We put our customers first, with a unique approach to service, aiming to build long lasting relationships. We supply recyclable and sustainable solutions, with an extensive portfolio of single and double wall sheets, eight flute types and fifteen paper types. We are perfectly

L to R: Alex Morris, Eric Marshall and Richard McBride with Phil Pinnington (BHS Corrugated Ltd).

"WE SET HIGH STANDARDS IN TERMS OF OUR PRODUCT QUALITY AND ENVIRONMENTALLY FRIENDLY APPROACH."

ALEX MORRIS

placed to meet any challenge set."

Run as an autonomous business unit within the Group, Board 24 is in control of its own requirements, especially when it comes to equipment and services. A major focus for the last 24 months or so has been the expansion of its Preston site, taking it from a single corrugator site to a two machine power house. The project saw an extension of the factory space, installation of a new corrugator, boiler and starch kitchen, along with extensive development of the materials handling lines and pallet insertion and strapping.

UK coverage

With sites in Coalville, Preston and Larkhall, the company is well placed to serve sheet plants throughout the UK and into Northern Ireland and Eire. Coalville in Leicestershire runs two Mitsubishi corrugators – a 2.5m machine that can run single and doublewall and a 2.0m machine that runs single wall only. Both machines feature Fosber dry-ends, with Escada controls.

Preston runs a 2.5m Mitsubishi that can produce single and doublewall and a new, state of the art 2.5m 'Speed Line' from BHS Corrugated. Larkhall, which services the Scottish market, runs two 1.6m Taiwanese corrugators, running single and doublewall board. Planning for the entire operation is handled from Coalville, with a centralised Kiwiplan plant scheduling system.

"We set high standards in terms of our product quality and environmentally friendly approach and pride ourselves on an efficient, flexible service, helping customers to meet their deadlines and ensure we recommend and produce the best specification for their packaging needs," says Alex Morris, Sales & Marketing Director. "The investments we have made throughout our sheet feeding operation is testament to our dedication, our customers and our commitment to remaining the leading sheet feeder in the UK."

Not all smooth sailing

When the company started out on the project back in November 2014, they hit a bit of a problem that they had not really expected! Little had they realised that part of the site that was to be developed

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ERIC MARSHALL

for vehicle turning circles was populated with Great Crested Newts. To ensure the construction operations in the proposed extension area did not harm individual Great Crested Newts, the working area was surrounded in newt exclusion fencing. A perimeter exclusion fence was also installed with internal dividing drift fences to create seven compartments to maximise capture success. Pitfall traps were installed along the exclusion fencing, to a total of 110 traps. Over the course of the project, all captured amphibians were carefully translocated in a bucket with wet moss to the hibernacula in the receptor area. Since completion of the project, the receptor area is being managed specifically for Great Crested Newts and associated wildlife. "We had certainly not anticipated a stall on the project due to wildlife," remarks Eric Marshall, Operations Manager – Preston. "Two years on, what we don't know about Great Crested Newts is probably not worth knowing!"

Coalville or Preston

Mr Marshall continues, "It had been our plan to increase company-wide productivity and we had originally looked at upgrading the machines at Coalville, but when we looked at it in detail, there was going to be a lot of work to be done on infrastructure which we decided against. We then looked at Preston and it suited the project well, because we realised we could install a new machine without interfering with the other machine, thereby ensuring continuous production and little down-time."

Speed Line

At the heart of this latest project at Preston is a 5,000 sqm extension and installation of a new corrugator. In addition, a new SRP-Europe starch kitchen was installed, along with a dedicated high-performance boiler to run the new machine. The corrugator is a heavy duty 2.5m 'Speed Line', designed, manufactured and installed by BHS Corrugated, to run single wall corrugated sheets with paper weights from 60 – 440gsm and order lengths from 50m upwards. At the heart of the wet-end is a MF-B Bandleader single facer with resident B and D flutes, which allows flute change within five minutes and a third E flute cassette with quick change system of 10-15 minutes. The single facer incorporates the latest glue application systems, preheaters and pre-conditioners with quality and speed related settings plus latest touch screen technology for ease of operation.

Paper is handled by RS-M Mill Roll stands with semi automatic reel handling and five SP-M II splicers which splice at speeds of up to 400m per min with over 99 per cent reliability utilising the 'Dual Control' system for accurate and constant tension throughout operation and splice sequence. The double facer liner splicer has the first automatic splice preparation feature installed in the UK, for improved splice preparation speed and accuracy at this critical location.

The duplex bridge brake and guide assembly, including the Webtrol guide and brake, together with a duplex preheater stack PH-M/2 with 1100mm diameter drums (which are over-width), driven and incorporate zero wrap arms. These machines ensure perfect control of web and liner to ensure optimum heat transfer and tension control for all board qualities across the speed range of the machine.

The DF-P7 double facer has an integrated preheater and thin gun drilled hotplates bolted to a rigid steel sub frame to keep the hotplates in perfect shape for all production requirements. The

Sound enclosure on the dry-end.

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RICHARD MCBRIDE

Platerol loading system combines the benefits of weight rolls and shoes for highly efficient heat transfer and perfect bonding of the web. With the combination of thin hotplates and Platerol loading system, the machine can rapidly adjust temperature and loading requirements according to machine speed and qualities being run and the maintenance of perfect hotplate shape eliminates the likelihood of double facer related warp problems.

The traction section of the DF-P double facer incorporates an automatically adjusting load system according to board grade which, compared to older generation machines, gives energy savings of up to 25 per cent.

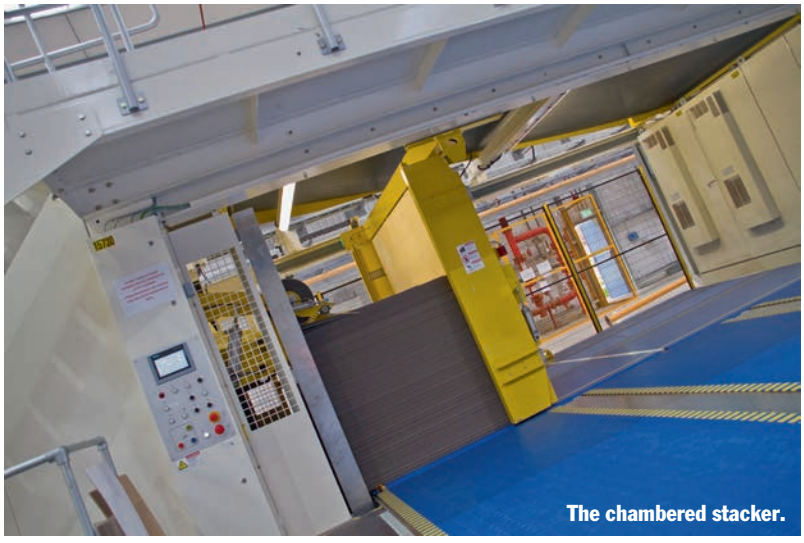
At the dry-end, the machine can handle 50m length orders consecutively. The slitter scorer is a SR-S RRMM(M) machine for production of up to seven outs. It enables the dry-end to order change at speeds of up to 300m per min and the additional scoring unit eliminates the requirement for tandem set ups of the machine. The slitter sections of the machine have disc cut slit knives, which slit from beneath the board line reducing the lipping effect on board edges and eliminating the risk of edge delamination. A separate trim knife station in close proximity to the trim shutes means that jam up risks are minimised and minimum trim of 5mm glued board can be confidently run.

The cut off knife, with extended frame for a Zero Defect System, is a high speed HQM duplex knife with 2 x 60kW AC drives per knife directly coupled to carbon fibre knife bars with industry leading speed curve performance and accuracy. Latest design knives, innovative access design and torque control features ensure long knife life and ease of operation, reliability and maintenance while the drives in combination with carbon fibre knife bars keeps energy consumption to a minimum.

The complete line can be controlled by one man.

The AS-M/2 stacker is an in-line machine with an upstacker with 4.5m chamber and down-stacker with 3.6m chamber length. The combination of upstacker with fastest cycle time and downstacker ensures that there are no speed restrictions to the corrugator relating to sheet format.

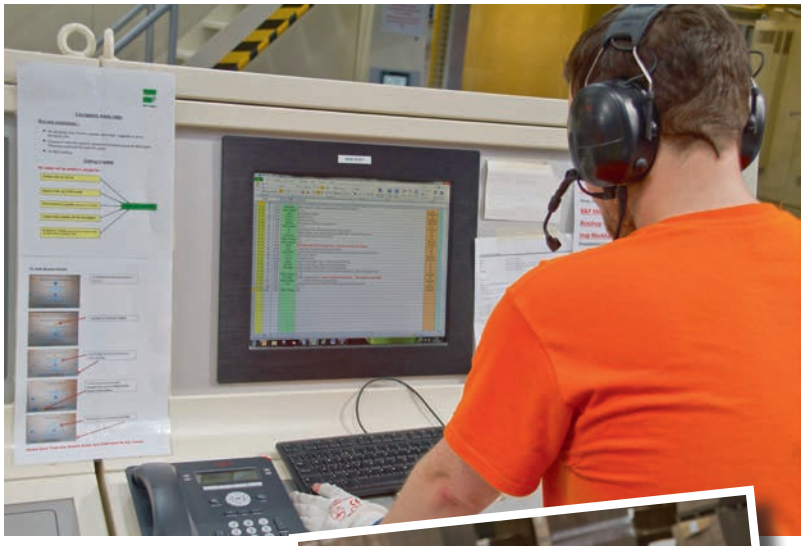
The corrugator is controlled via the BHS Corrugator control centre, which is located at the dry-end of the corrugator. This includes a number of features to optimise performance of the machine. There are parallel monitors for all machine units, which enables the corrugator



The chambered stacker.

"DURING THE PROJECT PLANNING, POWER, STEAM AND OTHER SERVICES WERE DISCUSSED AT LENGTH AS THE TEAM WERE KEEN TO RUN THE MOST ENERGY EFFICIENT CORRUGATOR IN THE UK."

PHIL PINNINGTON



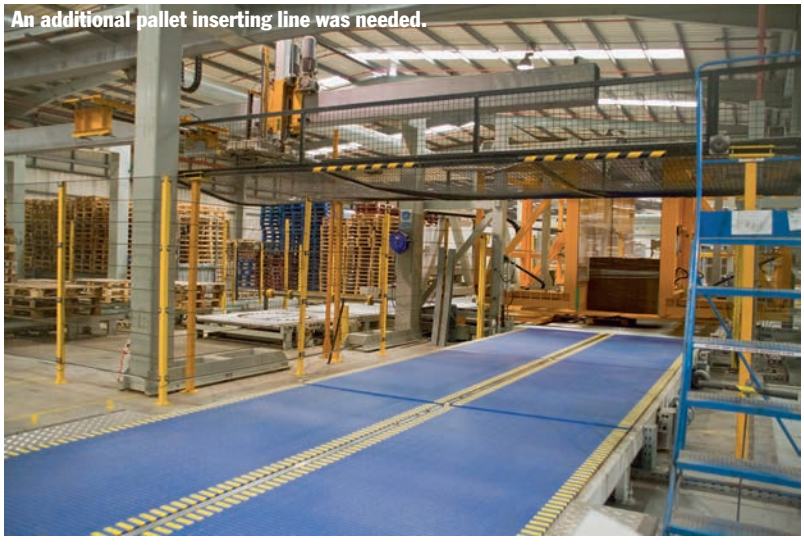
Escada have many of their systems running at Preston.

to be run by a single operator. The wet-end controls include full splice synchronisation with the option of leading roll function to keep part rolls to a minimum. In addition, the machine has a full Warp Control System (WCS) for automatic download and control of the machine parameters per board grade. The location and structure of the machine operating control in combination with the Zero Defect System allows the machine, in principle, to be run with just one operator at the dry-end.

"During the project planning, power, steam and other services were discussed at length as the team at Board 24 were keen to run the most energy efficient corrugator in the UK," explains Phil Pinnington, Managing Director of BHS Corrugated Ltd. "To be able to measure the efficiency of the machine, each individual machine on the corrugator has its own power feed, where consumption is monitored and recorded. The same principle has been adopted for the supply of steam to the wet-end units. This will enable the ongoing understanding and management of costs of the corrugator operation, which is critical in today's modern manufacturing environment. Being able to see exactly how much power is being used by such a high performance machine helps Board24 monitor the ongoing ROI and ensures that it is one of the most cost effective machines running in the world."

No bottlenecks

"Putting in a new corrugator put huge pressure on the material flow," explains Mr Marshall. "To this end, we extended the Dücker materials handling system and added another line of pallet inserters. To ensure maximum throughput of finished pallet loads, we chose to install the latest generation of Mosca pallet press. We have been really happy with the service from Mosca and we have been impressed with how



An additional pallet inserting line was needed.

SPEED LINE FOR PRESTON

"IT'S NOW UP TO THE TEAM AT PRESTON TO SHOW WHY WE ARE THE BEST."
RICHARD MCBRIDE

The new Mosca pallet press.

well the new machine handles a huge workload. It is easy to run and simple to maintain. The team at Mosca Direct in the UK have been fantastic throughout the project."

Big numbers

"The new corrugator really hit the ground running," says Mr McBride. "We decided to put some fresh team members in place for the new machine and with some excellent training from BHS Corrugated in Germany and their office in the UK, we were achieving some very impressive numbers right from the start. The project ran smoothly, to plan and was on time. I know that Eric and the whole team agree that this is one of the smoothest and most impressive start-ups of a new corrugator and the quality of board being produced is second to none in the UK and probably Europe too."

"The first stack of board produced was saleable and within one week of operation with a green crew, there were shifts that saw production top 120,000 lineal metres," says Mr Morris. "Within six weeks of start up, the machine had delivered one shift that produced in excess of 136,000 lineal metres. To date, the best shift achievement is 143,800 lineal metres. It really is quite impressive."

Mr McBride concludes, "Now the machine has settled down, it's up to the team at Preston to crank up the numbers and show our customers why we are the best at what we do!" ■

Upgrades on MHI as well

While developing its plans for the new hall and corrugator, Board24 did not want to overlook the other machine on site. To this end, they went about looking at how they could get more from the existing Mitsubishi 2.5m corrugator. Coming up to 20 years old, the machine runs both single and doublewall board, with impressive performance. “We knew the machine could still produce more though,” says Eric Marshall, Operations Manager – Preston. “We contacted Escada, who we have known for years, and asked them to come and look at what they could install to help us get more out of the machine.” Escada set about replacing the Sigma X and Sigma Process systems on the MHI corrugator with a Syncro7 corrugator control package. The project saw the replacement of the complete Sigma dry-end, wet-end and process control systems with new electronics. A number of site surveys and testing visits were made to ensure that Escada, working with Board24’s technical department, were able to reverse engineer the no-gap order change system. The second phase of the project was the removal of the Sigma Process PLC, which controlled all the wrap arms plus the double backer shoes and provides E-stop, normal stop and error annunciation.