



# PIONEER

The monthly newsletter from



## HEADLINES

### STRENGTHENING THE TEAM

We are delighted to welcome Will Longmate to the Malting Box team. Will is a Masters Student from Heriot Watt University and holds a post-graduate diploma in brewing and distilling.

He comes from a long line of maltsters and has gained 'hands-on' experience with a number of the UK's largest producers.

Will (pictured below with our latest visitors) shares our deep passion for the development of the craft of malting and now has day to day responsibility for malt production and testing for Malting Box, while also working to build relationships with local, national and international craft brewers. He is the Chairman of the Milton Keynes Beer Festival for 2016 and will play a leading role in the Malting Box Academy.

### SEEKING EU SUPPORT

With the help of our expert advisers from Ixion Holdings, we are about to apply for a grant under the EU's Horizon 2020 Research and Innovation scheme to accelerate the development and production of a new, larger range of machines, capable of producing batches in multiples of 2.5 tonnes, which we know from our research will be of great interest to craft maltsters who need to produce larger volumes



### OUR LATEST VISITORS

We were thrilled to welcome Hilde and Hans from the Kringler Gjestgard in Norway to our Milton Keynes HQ. They were particularly interested in our 250kg craft system and are in the vanguard of the movement to re-establish the business of malting in Norway, where the craft had almost died out.

Separately, we are in advanced talks with Norsk Handverksmalt (the Nordic Craft Malting Co-Operative) about supporting their efforts to open new pilot malthouses in 2016



Pictured (from L): Hans, Hugh, Hilde and Will



We were thrilled to announce in December that we are working with SABMiller on a series of very exciting projects.

They remain confidential for the time being but we are very excited that one of the world's biggest and most successful breweries has chosen to work so closely with us – using both our machines and our expertise.

GOING FROM STRENGTH TO STRENGTH

The end of 2015 and beginning of 2016 has been one of our strongest periods ever in terms of sales.

We have arranged to provide micromaltings and refurbished mashing baths to a number of exciting new customers, including the University of Montana, NIAB, and the world-famous Kellogg company in the USA



Connect with us via social media:



@maltingbox



**NEWS FROM AROUND THE GROUP**



HEALTHIER HYDROGENATED WATER

Trials continue on our revolutionary hydrogen-rich water machines.

We are delighted to be working with the MK Dons – SkyBet Championship side and our local club – to assess the effects of the water on professional footballers. They got off to a great start, with their first game after taking delivery of the Hydro-Cool machine being a 3-0 FA Cup win. Next up, the mighty Chelsea!

We are hoping to announce further trials with a both a world famous hotel and Spa and one of the UK's best-known universities within the next few weeks.

For more information, please see our website - <http://aquaoozone.co.uk/hydro-cool-hydrogenated-water>



AquaOzone's ozonated water machines provide the perfect answer – ozone is much more powerful than chlorine-based bleaches and leaves no harmful residue. It's widely used in commercial food processing so now it's time to bring it into the home! Please contact us for more information

**Our Christmas article - AVOIDING FESTIVE NIGHTMARES – caused quite a stir.**

A piece on the Daily Mail website highlighted the potential dangers of food poisoning, particularly from washing and stuffing Christmas turkeys. We reprinted it with some graphics pictures in our Christmas edition and got lots of feedback!! So much so, we thought we'd offer you the link again – together with our solution!!

You can find the complete article here:  
<http://www.dailymail.co.uk/tvshowbiz/article-3359946/How-turkey-covers-kitchen-BUGS-Alarming-pictures-preparing-festive-feast-leave-trail-food-poisoning-bacteria.html>





## FROM OUR MALTING EXPERT ...

*Our regular series of insights and ideas relating to malting and brewing, from Hugh Alexander*

### **A brief description of our Maltings and Brewery in Scotland – how our craft systems developed organically from our world-famous analytical micromaltings**



The initial drawings for the equipment at our property in Balnamoon in Scotland were completed in 2007 and the operation developed slowly over the next 2 to 3 years, with final commissioning in 2013/14.

The malting system comprises three separate items, namely a steep tank, a germination unit and a kiln. All three items are essentially scaled-up versions of our original world-famous micromalting systems, and the control systems used are micromalting system control boards, all programmed through a PC link. This is a common feature across the full range of products we offer.

The grain is moved between the three parts via a chain hoist. The steep box is a shallow hopper-bottomed tank with a slide gate to release the grain into the germination drum. This tank is raised and lowered into the steep tank via the chain hoist. The steep tank works on the same principle as the micromaltings in that there is an outer tank and an inner tank. The outer tank acts as the reservoir for the inner tank and also as the temperature jacket. Steep water moves from outer to inner on the gravity assist principle, just as in the original micromaltings and in our larger machines.

The germination unit is a lidded box in which air is humidified and directed to the base of the tank and exhausts through a recirculatory valve located at the top (and to the side of) the tank. The germination drum rotates on rollers to enable turning of the grain.

The kiln is identical to the micromalting kiln, just scaled up. This scaling also applies to the ducting and fan. The recirculation valve is split into two for this kiln and there is gearing which allows us to keep to one motor and one sensor. There are heat exchange radiators on the exhaust and air intake. The kiln can operate at temperatures up to 150 Centigrade.

After germination, the grain is moved from the drum into a kiln box for loading into the kiln, again using the chain hoist. Kilning is easily achieved within the 24 hour period for lightly kilned malts. Darker malts can take longer depending on the colour desired.

After kilning, the malt is deculmed and then screened.

The grain is delivered from a hopper above the screen via a dosing conveyor into the base of the screen drum. The drum rotates and within the drum is a helix arrangement to move the grain over the slotted material and up the incline to be delivered into a receiving box. This screen is also used to clean the barley prior to steeping.

The finished malt is stored in air tight steel drums.

This then is the malting equipment at Balnamoon. It produces a consistent, high quality product and will run fairly automatically. Intervention is needed to do the transfers, but I think without some form of inspection during the process it would be difficult to produce a consistent quality of malt.

The brewing equipment was designed and constructed at the same time as the malting equipment. It is based around a traditional single infusion mash tun, so there is a hot liquor tank to get the brewing water up to temperature, a grist hopper connected to a screw conveyor masher, the mash tun, a mash tun underlet, a hop kettle, a whirlpool separator and closed loop heat exchanger, and nine fermentation vessels. These are connected by piping to allow the brewing process to occur.

The mash tun is controlled by a modified mashing bath control system, programmed via a PC link. The mash extraction process takes around 6 hours from switch on to pitched wort in the fermenter.

After fermentation, the beer is racked off the yeast, through a 1 micron filter into the carbonation vessel, where it is carbonated to 1.2 Bar CO<sub>2</sub> at zero centigrade for two days. The beer is then bottled using a system designed by CLP into 275ml bottles and capped with a crown closure cap.

We are planning to put in place a small treatment plant (designed by CLP and eozone Group) prior to discharge of waste water into the burn.

We are working hard to put the 'field to glass' concept into practice and we'd love to hear examples of others doing the same thing around the world.