

INVESTMENTS IN NEW BREWHOUSES IN SWEDISH MICROBREWERIES – PART ONE

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The Swedish microbrewery scene experienced fast growth during the last decade. Several companies faced capacity problems that made it necessary to expand brewhouse equipment. As a result, several new brewhouses were installed in Sweden during 2011. Different breweries chose different approaches to plan and to realize their investments and different suppliers. More expansions will happen in 2012. We will meet some of the breweries during the coming months and hear about their experiences. The first company is Sigtuna Brygghus, which is situated in Arlandastad, between Stockholm and Uppsala.

Sigtuna Brygghus is one of the newest microbreweries in Sweden, founded in 2005. The founders were homebrewers and, similar to several other Swedish microbreweries, ran the company without employees during the first years. They ran the brewery in their spare time. They brewed their beers using Wedholms tanks adapted to be the lauter tun and wort kettle, with a batch size of 15 hl using 500 L and 1,000 L beerdrive tanks for fermentation and storage. From the beginning, both bottom-fermented and top-fermented beers were brewed. In 2007, a used Malek keg cleaner and new bottling equipment from the USA (4 head filler with crown corker) and Germany (Herma labeller for self adhesive labels) were added. The sales numbers rose from 300 hl in 2008 to 900 hl in 2009. In 2009, a brewer was employed and this marked an important step to a new Sigtuna profile, with new labels and new beer

types launched. Sigtuna even invested in a used kieselguhr filter in 2009 (Seitz Orion 40 x 40 frame filter) and started to filter some of their beers.

In 2010, Sigtuna could enlarge the production area as they got the opportunity to take over the neighbouring rooms in the same building. With now two employed brewers, sales numbers continued to increase.

The next step was the investment in a bigger bottling line for 3,500 bottles per hour with less manual handling. The line that went into production in September 2010 contains case erector, case packer and case sealer and has a need of three operators. The filler is a reconditioned Holstein & Kappert VF 20/4 short tube filler. The existing Herma labeller was integrated in the line and it is equipped for three different bottle types. Two more people became employed as line operators at this point.



As the number of existing tanks had been completed with four bigger 30 hl tanks for two brews each, the possible production capacity was approximately 4,000 hl at the end of 2010. It was obvious that this volume would not be sufficient in order to produce the necessary quantities for 2011, and as a consequence the planning process for a new brewery started. This new brewery would be installed where the current bottling line was.

The main reason for the quick rise of sales was that Sigtuna got an additional owner in 2010: Galatea Spirits, who owns several beer brands. One of their brands is St. Eriks, and Sigtuna started to brew and to bottle several St. Eriks products after the new bottling line had been put into operation.

PLANNING PHASE, BREWHOUSE INVESTMENT

Sigtuna has been cooperating with Leibfacher CBB Consulting since 2007, and as a result several of the investments between 2007 and 2010 were done with their involvement. Leibfacher CBB Consulting delivered the kieselguhr filter, several tanks, and the new bottling line. Leibfacher was asked to work on a concept to enlarge the process capacity to 8,000 hl per year in spring 2010.

The brewhouse size was decided to be 30 hl (double the capacity of the existing brewhouse) and a specification was formulated in May 2010. The brewhouse should consist of a combined mash- and wort kettle, a lauter tun with a 750 kg malt load capacity, a whirlpool and wort cooler, and preferably mounted on a frame including pipe work. Semi-automatic at mashing, wort boiling and cooling points, as Sigtuna wanted to keep the craft brewer's equipment atmosphere. During summer 2010, various used equipment alternatives were evaluated, but none of them seemed a good choice.

Apart from the technical details, the expansion schedule became very important, as it was necessary to enlarge capacity as early as possible. In this stage, it was decided to invest in a new brewhouse and in six new cylindroconical tanks: two for a three-brews-each schedule, and four for two brews each. A total budget for the brewhouse, malt mill, tanks, steam vessel, cooling equipment and pipe work was formulated and the planning work was done by Kenneth Sköld from Sigtuna together with Uwe Leibfacher.

Most of the equipment needs had been clearly defined by the end of 2010, and then most of the orders were placed. Kaspar Schulz got the brewhouse contract and Johann Täuber Mühlen- und Maschinenbau was chosen as supplier for a 4 roller malt mill. Kaspar Schulz had some difficulties with component suppliers in spring 2011, so a five week delay resulted for the brewhouse delivery. Since Kaspar Schulz announced



FROM MY VIEW AS A BREWER WITH START-UP EXPERIENCE IN CONNECTION WITH DIFFERENT BREWHOUSE SUPPLIERS, KASPAR SCHULZ DID A REALLY GOOD JOB WITH INSTALLATION AND START-UP. OF COURSE, IT WAS AN ADVANTAGE THAT GERMANS DON'T CELEBRATE MIDSUMMER.



this at an early stage, Sigtuna could handle that. The six new cylindroconical tanks were installed while the four smaller ones already in use and even the two big ones were put into operation. (That had been planned to be done in connection with the start-up of the new brewhouse.) During May and June, the old brewhouse supplied all the new tanks with wort, which was a lot of work for Sigtuna's brewers.

INSTALLATION AND START-UP, JUNE 2011

The Kaspar Schulz brewhouse was delivered to Sigtuna on June 16th and the first brew was made on June 28th. On schedule! As the installation had been planned carefully, there were no major problems and the different involved companies cooperated well with each other. All equipment connections had been designed in advance and were prepared before installation.

The brewhouse worked as specified and expected from the first brew onward. We did experience small control detail problems such as valve control for decoction mashing and for blending of cold and hot water, but Kaspar Schulz fixed them within the first month.

There are some important reasons that the start-up worked very well:

- It was clear what we purchased, as there was a detailed specification that Sigtuna and Kaspar Schulz had agreed upon.
- All border lines with other suppliers had been defined, as well as who was responsible for what.
- All equipment connections had been designed and constructed in advance.
- Sigtuna had a very engaged project manager named Kenneth Sköld. He was responsible for necessary tools and material during installation and start-up.



EXPERIENCES FROM THE FIRST SIX MONTHS OF BREWING

From my view as a brewer with start-up experience in connection with different brewhouse suppliers, Kaspar Schulz did a really good job with installation and start-up. Of course, it was an advantage that Germans don't celebrate midsummer. Twelve days from delivery to the first brew is remarkable. There are big technical differences between Sigtuna's old brewhouse and the new one. The old brewhouse provided no decoction mashing possibility. Rather, it used a combination mash/lauter tun and we did drop-infusion conversions. The boil in wort kettle in the old brewhouse used electrical heating and took 90 minutes. Boiling in the new brewhouse takes 70 minutes and is done via the Schokolino system. As a result, there are a lot of operating differences between the two brewhouses, in addition to how much malt and hops are needed.

The malt load is now lowered by 20-25 per cent, and the amount of hops by 10-15 per cent. These are important economic factors. With regard to the malt reduction, a better malt mill (Täuber UM 4-175/200 compared with a 2 roller mill in the old brewhouse) and better mashing equipment have a positive impact. The beer colours get a little bit lighter in the

new brewhouse. Generally, the adaption of the different beers from the old to the new brewhouse worked very well.

Kaspar Schulz offers different types of control systems. The customer can choose between a full automated Siemens S 7 control, the semi-automatic Easy Control system, or manual handling. Sigtuna's brewhouse is equipped with the Easy Control system. From a point of view to minimize both the brewers' working hours as well as human error, the Siemens S 7 control might be preferred. On the other hand, the Easy Control system offers the right mix of manual and automatic steps for proud and experienced craft brewers.

The Sigtuna and St. Eriks product range covers different beer types with several extra strong beers. Some of them are seasonal beers for Christmas. Brewing these beers we run the lautur tun 10 per cent overloaded (825 kg malt instead of 750 kg) and this is possible to handle without bigger problems, even when using higher amounts of caramel malt. Of course, it is necessary to adapt the mashing procedure. We achieved acceptable results using decoction methods for the strongest beers.

With regard to the amounts of hops, there are some understandable limits. It is not a good idea to put hops in the whirlpool before filling it with wort, as that will prevent the whirlpool from working correctly. We tried that once and went



back to putting the hops in the wort kettle at the end of boiling. As some of the Sigtuna beers are hopped with big amounts (up to 30 kg pellets for a 30 hl brew), it is no surprise that the product losses when emptying the whirlpool are bigger than for normal brews.

Generally, the Kaspar Schulz brewhouse works very well. The lauter tun is especially well constructed. It is obvious that Kaspar Schulz has a good deal of experience from 333 years as a family-owned company, and that their brewhouses offer a high value for the money. Furthermore, the Kaspar Schulz personnel were flexible and good problem solvers. A high degree of service and good personal contacts are important in the long run.

In conclusion, we had high expectations when ordering the brewhouse from Kaspar Schulz. The brewhouse fulfilled most of them. With regard to a few details that differed from our expectations, it was our fault, as we had not specified these carefully enough. ▽

ABOUT THE AUTHOR

Uwe Leibfacher is an experienced brewmaster (graduated as Diplom-Braumeister at TU München-Weihenstephan in 1988) who worked in leading positions in several breweries in Germany and Sweden until 2002. Since 2003, he has been running his own company, Leibfacher CBB Consulting AB, which is based in Halmstad, Sweden. Uwe Leibfacher has been involved in many smaller and bigger beverage projects in Scandinavia, such as the delivery and start-up of the Nørrebro bottling-line at Baldersbrønne in 2005, enlarging and relocating Nils Oscar Company in 2006, preparation of Herrljunga Cider for BRC certification 2010, and several piping layouts for process equipment in breweries and soft drink plants.

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