Under construction

RETAIL CHAIN COOP IS BUILDING A NEW PRODUCTION, STORAGE AND LOGISTICS SITE IN SWITZERLAND. BBI VISITED THE CONSTRUCTION SITE

++ figure 1

++ figure 1
Two of three boilers are sufficient for operating the ovens. The third one is used for the heating-up phase. It is simultaneously equipped for oil and gas operation to be able to keep the operation going in case of emergency

++ figure 2
The fully automatic basket storage houses 36,000 baskets

++ figure 3
Bird's eye view: Gallery of ovens for the bread lines, left side with five hearths, right side with seven hearths

++ figure 4
Belt proofer of one of the two bread lines

++ figure 5
The steam boilers for all five ovens are also heated by the thermo-oil plant

++ figure 6 (page 14)
Pipework of the double oven which allows separate control of top and bottom heat in three zones each in both oven groups

++ figure 7 (page 14)
Proofer (right), oven (left): manual work such as cutting the dough pieces can be done between both units. The transfer table provides for two rows each so that the operator can cut on both sides

In the future, all Coop Switzerland products intended for all locations in French Switzerland will be delivered from Aclens near Lausanne. This includes dry baked goods, fresh baked goods and frozen products. Currently the Cooperative is building a 51,000 sqm complex with storage and production areas on four floors in a small town near Lausanne. The warehouse will take up more than 2/3 of the floor space on the first and second floor where the pastry shop is located as well. 30% of the building has been reserved for the bakery and pastry shop. The bakery produces fresh goods on six lines. Five of the lines were delivered by WP.

The bakery occupies the entire third floor. The fourth floor is just a gallery running along the outside walls – allowing space for the bakery in the centre up to the roof – and is used as a location for dough make-up, raw material storage for the bakery, thermo-oil plant and facility engineering. The flour supply is stored in six outdoor silos. Currently two of them are used by the Coop sister Swissmill as intermediate storage. The entire bulk handling and dosing technology is provided by Bühler, Uzwill, Switzerland. The reason for that is not a patriotic one, stresses Andrew Beushausen. Engineer Beushausen is managing director of Beta Bakery Engineering

Belt proofers

It was decided to use multi-level belt proofers in Aclens as are currently in operation at the Coop subsidiary Panofina in Wallisellen, Switzerland.
Temperature is controlled via climate columns with integrated heat exchangers. The air is humidified adiabatically with an osmotic water spraying system. The conditioned air is blown into the proofing cabinet via climate columns between the belt carrier plates and the belt return. It is distributed in a non-flowing manner in the product area. The unmoulded products travel on woven cloth whose rails are pulled by chains above the carrier plates while the trays are transported by smooth plastic films. Loading and unloading units operate inside the proofing cabinets so that only one opening is required for product feed and discharge instead of several openings on all levels. All proofers can be easily wet cleaned if needed. The cloths can be exchanged in next to no time and washed. +++


++ figure 2


++ figure 3

GmbH, Villingen-Schwenningen, Germany, and responsible for the planning of the bakery. He has also been the bakery project manager since the beginning of the planning. He can be considered as being the extended arm of Andreas Schwab,a member on the Coop management team and responsible for the project Aclens.

Later in September of this year, the new bakery will replace four smaller Coop bakeries completely and a fifth one in parts. The production of frozen goods has been relocated to Hicopain, a joint venture of Coop with dough piece producer Hiestand and the production of doughnut-type products now takes place in the Coop bakery in Bern. This leaves for Aclens "only" the production of 37 tons of fresh products each day in two interlacing shifts. Here breads are made from conventional and organically grown grains, as well as small bakery goods, plaited products, baguettes and similar panned goods.

The product range at Aclens will still comprise more than 80 products, many of them being produced in small batches. The principle is that everything weighing less than 500 g will leave the oven only after midnight. Despite the fact that a lot of manual labor will still be required for the plaiting or cutting of products, this new building will see Coop achieving a significant streamlining effect.

The entire production is strictly linear in its organization but still offers exceptional flexibility. In fact, a product could change over to a different line after each production step. However, this change-over would have to be done manually. All belt proofers have long-legs allowing rack trolleys to pass underneath them.

In Aclens, the supplier providing the most equipment and thus having the largest budget will be Werner & Pfleiderer Industrielle Backtechnik, Tamm near Stuttgart, Germany. Except for an already existing Daub oven and a roll making plant by König, they will deliver the entire baking technology equipment from the dough make-up to the oven.

The dough preparation equipment including two large individual mixers and a linear transportation system comprising four mixers with a capacity of 300 kg each and a total of 22 resting places – of which only 11 have been set up – comes from the Italian company Sancassiano, Roddi near Alba. Up to now the recipes do not allow for sponge or sour dough processing, but the respective areas are already available and the equipment is in the planning stage.

LINE 1 consists of the Daub oven only. Here all frozen products supplied by Hicopain are baked off.

LINE 2 produces panned or moulded products, mainly baguettes as well as the strands for the well-known Swiss yeast-raised plaited loaves on a special line. The strands are plaited manually on a bypass line during the day shift and stored in the retarder proofer. The daily quantity is taken from the retarder and baked off. 80% of the retarder's capacity of 24,000 plaited loaves is normally sold on the weekend. For small baked goods a belt proofer as well as a Megador oven with three decks and 84 sqm baking area is available.

LINE 3 produces small baked goods as well as very small rolls and so called Sandwich Mignons. Later ones are transported via bypass from the proofer to the oven of line 2 which specializes ▶


++ figure 4


++ figure 5


++ figure 6


++ figure 7

in baking panned goods. The oven of line three consists of two groups of hearths with three hearths each. They are supplied independently with top and bottom heat and are separated by a blind level. The group of hearths on top with a 93 sqm baking area is used for baking small products, the bottom one, also with a baking area of 93 sqm, is for plaited loaves and is referred to as **LINE 4** within the company. Otherwise this part of the oven is used as a reserve.

A double loader between proofing rooms and oven ensures the independent flow of products into both oven halves. On the other side, another double loader is responsible for the separate completion of the baking process. In the case of products other than plaited loaves being baked on the lower level, the loader can be controlled in such a way that it leaves a gap after every second row so that an employee can cut the products.

LINES 5 AND 6 are almost identical bread lines with Haton make-up equipment. After half of the intermediate proofing time the products travel through a rounder. At the end of the line for conventional bread there is a seven deck Megador with 196 sqm baking area. For baking organic breads, a five hearth oven with 140 sqm baking area is used. In general, the product ranges have to be handled separately to save on intermediate cleaning time, but a change-over or complementary processing is always possible.

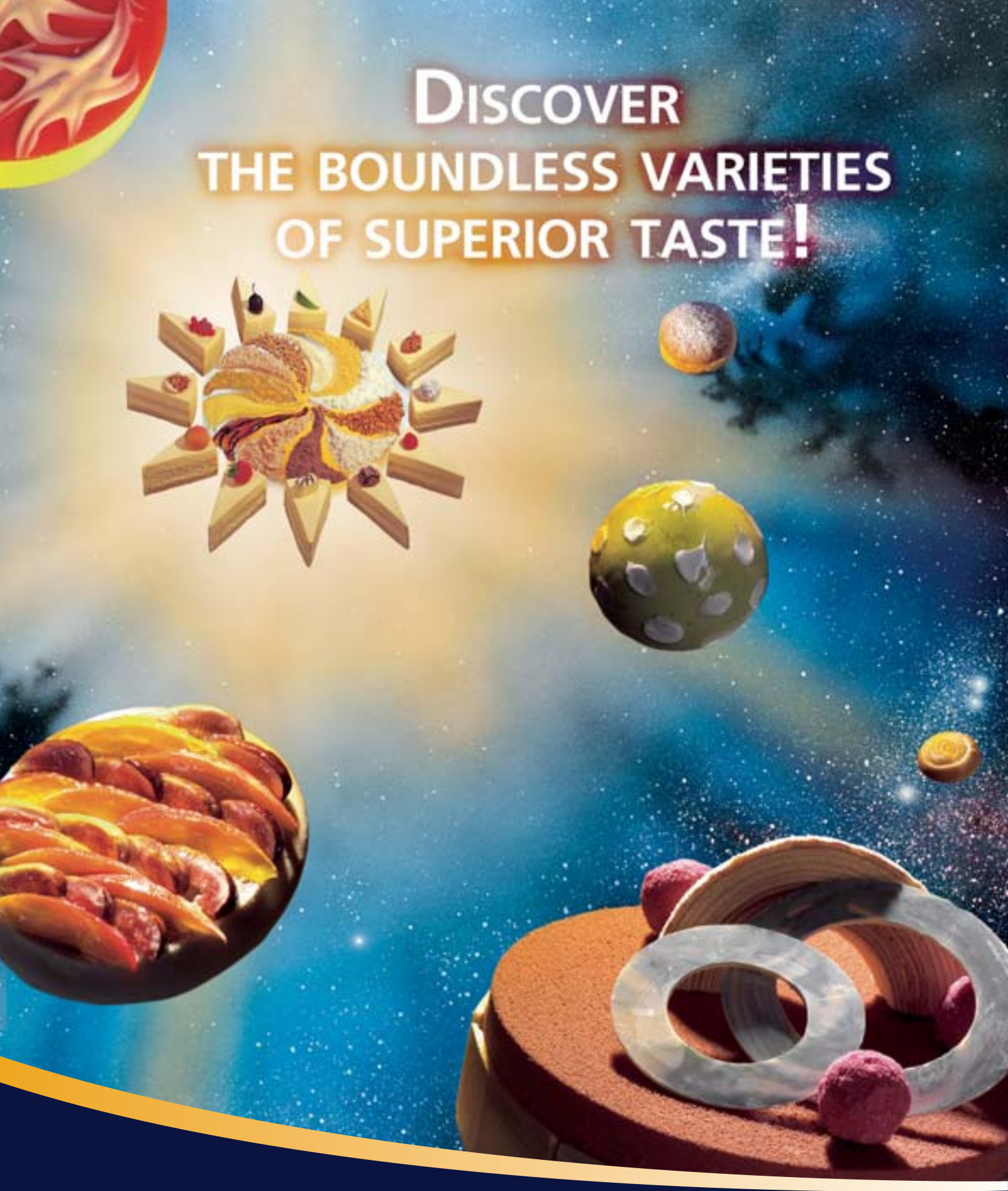
The entire production is controlled centrally via bus system where each station informs the downstream station on what is coming next. In future the system will be completed by a chip located at the mixing bowl. Dough preparation will then also be integrated into the system to meet all traceability requirements. After completion of the baking process and cooling, all baked goods are packed on the cooling belts that run above the plants. Swiss packaging solution provider Busch, Trimmis, has developed the packaging plants especially for Coop. The products are in general packed into paper bags with windows. This type of packaging is very popular in Switzerland, although, it requires two operators per line.

The goods produced on each line are pre-commissioned in separate stacks in the bakery and prior to dispatch transported by elevator to the picking area on the ground floor from where they are then loaded onto trucks. +++

Megador thermo-oil tunnel oven

Currently four Megador thermo-oil tunnel ovens are being installed at Aclens: oven 2 with three decks and 84 sqm baking area; oven 3/4 with two times three decks and a total of 186 sqm baking area; oven 5 with seven decks and 196 sqm baking area as well as oven 6 with five decks and 140 sqm baking area. All ovens have a width of 2.5 m and are sub-divided into three heating zones. Top and bottom heat in each zone can be controlled separately. The thermo-oil heating channels run closely underneath the belts for quick and powerful initial baking of breads and rolls. The temperature difference between incoming oil and return is only 5 °C. If the baking zone does not require further energy input, the return is fed into the oil circulation of the hearth plates again. Thanks to this continuous circulation, WP achieves a very uniform heat distribution in the individual hearth plates. Unmoulded products are baked at an interval of 1.30 m length, and for panned goods, the interval has a length of 90 cm.

One boiler plant on the top floor supplies all thermo-oil ovens including the existing Daub oven with hot oil. Three boilers with a capacity of 1.5 MW each operate as a combined system. The boilers are arranged in a horizontal position so that no ascending accumulated heat can flash back into the burner. Because the simultaneity factor, which is the simultaneous heat requirement of all ovens, is about 40%, only two boilers are needed for the operation. The third one switches on when the ovens are heated again and it can be heated with gas or oil so that in case of emergency at least some of the ovens can be operated. In addition the boiler plant provides the energy for the external steam generation for all ovens. Exhaust heat exchangers at all three boilers recover about 50-60% of the flue gas loss. +++



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