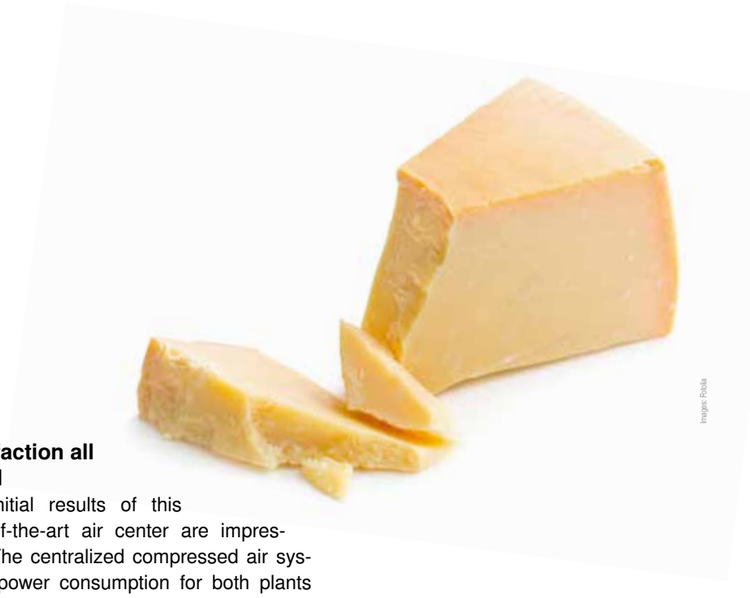
Gourmet service: the benefits of compressed air

# Trademarked Italian Cheese

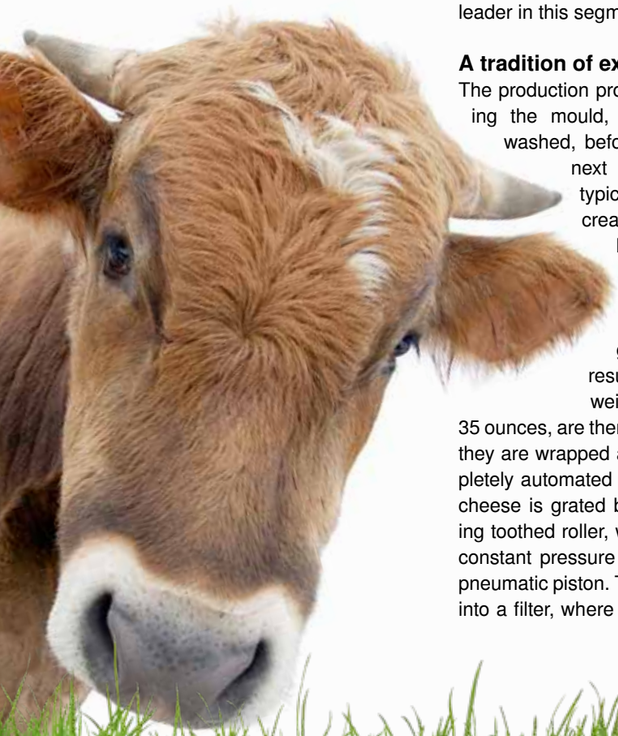
Parmesan cheese, or Parmigiano Reggiano, is produced in the northern Italian Province of Reggio Emilia in a time-honored tradition stretching back 900 years. Its roots go back to the Middle Ages and it has even been featured in the literary works of Boccaccio and Casanova.



Imagia, Fotolia

A hard cheese, made from cow's milk using a clearly defined production method, it is regarded as the king of all Italian cheeses. According to an EU regulation, its production has been protected by the Denominazione di Origine Protetta (DOP) seal since 1996. DOP functions to protect "designation of origin."

The production of Parmigiano Reggiano has barely changed over nine centuries. It still uses the same ingredients, the same process and the same meticulous craftsmanship. True to tradition, the family-owned business Parmareggio was established in Montecavolo di Quattro Castella, in the Province of Reggio Emilia, in 1983. Just a few years later, it had become one of the world's leading companies for the producing and marketing typical cheese products in the region.



Among cheese connoisseurs, the northern Italian producer is probably best known for its Parmigiano Reggiano, both as wedges and grated, and its Parmareggio butter. Incidentally, Parmareggio is the Italian market leader in this segment.

## A tradition of excellence

The production process begins with cleaning the mould, which is brushed and washed, before being passed to the next processing stage. The typical triangular shape is created by a machine that breaks the shape of the cheese in a controlled way, thereby revealing the cheese's classic granular texture. The resulting segments, each weighing between 28 and 35 ounces, are then vacuum packed, where they are wrapped and packaged in a completely automated process. Alternately, the cheese is grated by an enormous, revolving toothed roller, which is propelled under constant pressure towards the mesh by a pneumatic piston. The grated cheese drops into a filter, where the flakes are standardized according to size: the larger flakes are sent back to undergo a further processing step. They are subsequently sucked into a multiple-head scale, where a vibrating platform distributes them to a number of trays for product dosing. The final step is the packaging machine, which collects a pre-defined amount in a bag, before closing and sealing it.

## Compressed air is the driving force

Although the compressed air does not come into contact with the product at any time, it still drives all machinery from processing to transport, right through to quality control, while meeting the strictest requirements for food production applications with quality class 1.4.1 as per DIN ISO 8573-1. The compressed air system that powers both plants in Modena fits into a single compressor room and houses two KAESER CSD series fluid-injected rotary screw compressors, 60 and 100 hp respectively. One operates as an on-off machine with maximum efficiency at maximum capacity, while the other (SFC) handles peak demand, as the peak load machine. This combination produces just the right volume of compressed air with minimum energy consumption.

## Saving energy

Every element of the system must be taken into consideration to make power consumption as cost-effective as possible – the same also applies to the drying system. In this instance, an energy-saving SECOTEC TF® series refrigerated dryer is used. The dried air is pre-filtered using KB series filters and then passes through KAESER KEA series activated carbon filters.

Heat recovery is also another important factor. In order to recover the thermal energy generated by the compression process, Parmareggio has incorporated a series of KAESER KOMPRESSOREN's PTG heat exchanger systems, which absorb the heat from the compressors to heat the hot water required by numerous dairy applications.

The SIGMA AIR MANAGER 4.0 master controller orchestrates operation of all connected system components. Its main function is to ensure the two compressors are activated in the correct sequence. It also records the necessary system values in readiness for the next control cycle, and minimizes energy consumption. Not only is the master controller able to maintain the required pressure for the specific application, it also gathers all operating data of the equipment in the compressor room, enables predictive maintenance and guarantees maximum compressed air supply dependability.

## Satisfaction all round

The initial results of this state-of-the-art air center are impressive. The centralized compressed air system's power consumption for both plants is currently lower than that previously required by the cheese production plant alone. Overall, we anticipate a total energy saving of approximately 30%. In addition, calculations show that by using heat recovery to heat the service water supply, the company's gas consumption is reduced by approximately 176,000 cubic feet per year.

> Still not breaking the mold: nine centuries of history – almost a millennium of flavor, tradition, literature and ancient craftsmanship.