# Optimized processing environment

## Food safety and cost savings through targeted air management

**Air circulation unit using the Just Air concept**

A processing environment that is fit for the product has first priority in food processing and is also the basis for proper production and processing operations. Detrimental conditions arising from an insufficient processing environment are for example high airborne load, risk of smear contamination but also insufficient removal of internal loads (humidity, heat, dust, etc) and the resulting effects such as equipment overheating, unpleasant odor, condensate formation, increased energy consumption and higher refurbishing costs. In order to compile a detailed schedule of measures for a reliable (targeted and precise) and economical (as much as needed, as less as possible) optimization, the reasons for impaired hygiene must be identified during operation.

There is hardly another environmental parameter that influences product quality, economical expenditures, well-being and performance of people the way air does. Inadequate room air

quality often results in production losses. If the room air is not suitable for the people who work there, the risk of wrong behavior (opening of windows and doors) as well as of higher product waste due to lack of concentration will increase.

Apart from the targeted air management, the energy situation (cooling, heating) has become a significant cost reduction factor. Hygienically acceptable and conditioned air can be partly reused resulting in potential energy savings in the range of up to 80 per cent.

Within the scope of a technical analysis of the working environment conducted by specialized service companies such as Just in Air GmbH, Germany, comprehensive investigations of airborne count and surface load, monitoring of air temperature and hu-midity as well as air flow measurements are used to identify and depict hygienically and climatically weak points in the processing environment. The next step is the optimization of such weak points with simple measures.

## Improved air management

One main component for the improvement is an air management that is adapted to the specific requirements. By means of advanced air conditioning technology, constant climatic conditions can be achieved (air flow, temperatures, relative humidity, air filter processes) for individual sections. The design has to be adapted to the product and may include all aspects as can be seen from the following example.

The air volume flows shall be adaptable to the respective operational mode (production/cleaning) in terms of fresh air and removed air volumes. For permanent flushing of the respective problem areas, the fresh air must be introduced in a way that all areas of the room are embraced in order to prevent air shadows and dead zones as much as possible.

Via air circulation fans, clean, conditioned air can be moved over the product. This way the clean air supports the hygienic safeguarding of the production. Added to that, internal loads are removed as best as possible and undesired interferences (e.g. formation of condensate at thermal bridges) avoided to the largest possible extent. Air is discharged circumferentially to prevent the formation of deposits on the hoses' surfaces.