

Challenge of hygienic design when purchasing a machine

The biggest difference from the food industry to other industries is hygiene, i.e. maintaining cleanliness. Yet, for machines in food factories, the design does not always meet the expectations for hygiene and ability to clean.

Good hygienic design is the magic word for machines that come into contact with food. But what exactly does that mean when you buy a new machine? The best known three organizations, who set standards in this field, are:

- 3-A Sanitary Standards Inc.; especially used in the USA: www.3-a.org
- EHEDG (European Hygienic Engineering Design Group); especially used in Europe: www.ehedg.org
- NSF (National Sanitation Foundation); especially used in the USA: www.nsf.org

These organizations also certify equipment and machinery for the food industry. This however only makes sense if they are used in critical productions such as baby food.

Since 1989, EHEDG has been trying to provide clarity with around 40 guidelines in this field. Most people are overwhelmed with so much information. But it cannot be that one always has to hire an expert when buying a machine. There is a simple and generally understandable 10-point checklist by GMA: GMA principles for Equipment Design. (GMA stands for Grocery Manufacturing Association: www.gmaonline.org):

1. Cleanable: It goes without saying that the device should be easy to clean for the operator of these machines. Unfortunately, the reality is different: Cracks and crevices, in which residues get stuck; places that are almost unreachable; manholes in tanks that are too small; conveyor belts that are difficult to unlatch; machine parts that you cannot take apart.

2. Compatible materials: Do not use paint in direct contact with the food, as it will gradually deteriorate into the product through abrasion; chrome steel should be high quality when manufacturing salty materials; plastic must be food grade; wood should be avoided; adhesive tapes for maintenance are unsuitable; filters must not fall apart; O-rings and gaskets should be compatible with the intended use and resistant to the cleaning agents used.

3. Easy to inspect during maintenance and cleaning: Anyone who has to clean and disassemble a device knows this problem with many machines.

4. No fluid retention: Pipelines must never be completely horizontal so that liquids can drain off completely; pumps must be self-draining; outlets of machines must be designed so that all residues can drain out.

5. Not perforated or hollow: Devices in direct contact with food must not be hollow, for example, the axis of a blender. It would only be a matter of time before liquid penetrates through cracks and would be the fermentation medium for unwanted microorganisms, which then contaminate the product.

6. Smooth surfaces: On rough surfaces, microorganisms can nest and grow unwanted in cavities. Example: Brittle rubber hoses for food; welding's that are too rough.

7. Hygienic operation: For a machine, hygienic operation must be ensured: Condensate must be removed; food should not accumulate on the control buttons; drains and exhaust pipes must also be cleaned.

8. Validated cleaning protocols: The machine manufacturer must provide documents which define the cleaning and its control.

9. Separation of the raw materials from the finished product: The processes and the auxiliaries (water, air) must be guided in such a way that no cross-contamination can occur within the machine.

10. Installation according to hygiene guidelines: Mistakes that later may cause hygiene problems are often made when installing devices.

Examples: Faulty filters; parts that are set up incorrectly and therefore causing metal to metal contact and producing foreign bodies.

Many machine suppliers consider the above 10 points. However, there are still those that disregard these simple points.

Considering these 10 points next time you are purchasing machines and devices, will help you find a suitable and professional supplier. This will avoid hygiene problems in your factory in the long run.

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