



Info-Letter

Info-Letter 01

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The topic 'clean room' is becoming increasingly significant, in particular among European injection molding companies. The production in clean rooms frequently represents a market potential for those enterprises which is shielded against competitors from threshold countries at least in the medium term. At the same time, high-tech products manufactured in clean rooms, in particular if the products are innovative, have a better profit margin than conventional products.

What is special about the clean room?

The term 'clean room' is not used accurately in many cases. The rating into clean room classes describes the contamination of the room atmosphere with particles of different sizes (e.g. dusts, skin particles, abrased material). The present info-letter deals with clean room classes II (up to 100,000 particles/m³) and 7 (up to 10,000 particles/m³). Possible requirements regarding bacteria-count must be taken into consideration additionally.

Clean rooms are used frequently in the manufacture of medical and laboratory products, optical products or products with extremely smooth surfaces (e.g. display discs) as well in the field of electrical engineering and increasingly in the food packaging industry. A dust-free and sterile environment is often the crucial quality criterion in these areas.

Automation in the clean room

by Wolfgang Cziweg and Christian Bore

Due to the electrostatic charging which frequently occurs in the injection molding process, the products manufactured attract particles to their surface. In the clean room, the controlled and purified environment prevents contamination of products with microorganisms or pollution of surfaces by particles. Regular checks of bacteria quantity and particle concentration in the clean room air accompany the ongoing production process, and consistent traceability is required for many applications.

Compared to conventional injection molding environments, clean rooms often require considerable investments in ventilation, testing and measurement technology. In addition, the operating costs for a clean room including all the additional processes and subsequent expenses are clearly higher.



Example of medical products reactor vessel

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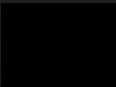
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Sorting according to separate mold cavities

- Comprehensive utilization of the clean room
- Availability > 99% is ensured by the respective technical design of the automation system and use of high-quality components.
- Space-saving construction method to use up as little clean room area as possible.

Protection against contamination of the air and the product

- Low susceptibility to faults is an essential requirement for clean room production, so that the clean room does not have to be opened unnecessarily for repair work.
- Ease of maintenance (long or no maintenance intervals). This is associated with the requirement of low wear by using high-quality, low-wear components and materials.
- Low particle emission which is also achieved by using high-quality, low-wear components and materials.
- All surface areas should be easy to clean, which is ensured by the respective technical design of the automation system.
- Movable components are always positioned beneath the product or are enclosed to avoid contamination of the product.

Experienced manufacturers of automation systems for clean rooms will be sure to meet these criteria. If you wish to learn more about "Automation in Clean Rooms", our specialist Technik specialists will be happy to assist you.