Protection modules for retail checkout zones

**Objective**
Measures to avoid or reduce harmful microorganisms have been successfully applied for many years in various industries, such as in pharmaceuticals or food production. In the current situation we find ourselves in, these procedures can contribute to safety and prevention — and thus minimize the health risk.

**Corona crisis and learning from other industries**
The starting point for our measures is cleanroom technology. This is a manufacturing process for aseptic production, as used in the abovementioned areas. This technology contributes to prevention and contamination risk reduction, as well as to protecting human health.

**Challenges and risks**
Airborne viruses, bacteria, and germs pose a health hazard. Uncontrolled transmission of harmful germs by potential carriers — whether customers or employees — can pose a significant health threat. Employees such as those in the checkout zone are located in the direct area of contact with customers. The risk of airborne contamination is always present. Partitions such as Plexiglas aprons serve as more of a physical barrier and provide limited protection.

**PROACTIVELY protect your customers and employees from harmful airborne microorganisms**

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A cleanroom technology solution for retail

Effective solution through laminar flow technology
The laminar flow technique is a setup for achieving a vortex-free air flow, which makes microbiological contamination avoidable. The laminar displacement flow ensures that impurities are removed from the air.

Safe and effective air filtration provides an aseptic environment and thus protects people from contamination. The system creates germ- and particle-free surroundings and is particularly suitable for critical areas such as checkout zones.

How does the system work?

The system sucks air from the room, the air is cleaned via multi-stage filters, and the filtered particle- and germ-free air is then blown into the room. The harmful airborne microorganisms, whether in liquid or solid form (viruses, bacteria, germs), are minimized and thus do not burden individuals.

The system draws in the room air at the top and blows the filtered particle- and germ-free air in a quiet, low-turbulence piston flow over the individual and the checkout zone.

Left: Simulation of the air flow. Right: Visualization of the air flow. The working area has aseptic air flow through it. The displacement flow provides protection against the possible contamination of other people. At the same time, the room air is mixed with the aseptic air and permanently cleaned. The risk of contamination is thus significantly minimized.

Flow velocity
The aseptic air flows out over the employee at a flow rate of approx. 0.2m/s and envelops the employee in a protective cover. This current is usually not perceptible to humans, does not usually cause draughts, and is established as an international state-of-the-art technology.

Displacement flow
The low-turbulence laminar flow flows freely over the employee into the adjacent room and thus suppresses possible contamination. The air is transported from the ground back to the suction point of the laminar flow system before being filtered and reinjected in recirculation mode.
Model in the standard configuration

**Technical data, standard configuration**

**Housing**
Steel powder-coated RAL 9010 matt

**Nominal capacity**
370 W

**Voltage/Phase**
230 V / 1 ph

**Filter stages**
G4 – H14

**Air concept**
Low-turbulence flow (recirculation mode)

**Air volume (circulation rate)**
Approx. 1,200 m³/h

**Dimensions LxW (mm)**
1200 x 600

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**Environment and room cleaning**

Due to the high air volume (per system approx. 600 –1000 m³/h) and the permanent filtering to 100 % sterility, the entire room is extensively cleaned. This creates additional protection in the entire environment.

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**Design and added value**

The laminar flow systems can be designed as pure air modules or with options such as LED lighting (open green / closed red), freely selectable coatings, design elements, or advertising lettering.

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**Assembly**

The installation is simple and can be suspended from the ceiling or set up with aluminum profiles. Depending on the size, the weight of the systems is about 30-50 kg. The systems are factory qualified, wired so that they’re ready to plug in, and only need electric power (230 V). The power consumption is about 150-250 W/h. With proper maintenance and operation, the service life of the filters is between 2 and 5 years.

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**Sustainability**

The laminar flow system also offers protection in other times of risk, such as for flu and influenza, pollen allergies, or other contagion hazards. The described effects continuously clean the room air of fine dust and pathogens.
About the company: Ortner Reinraumtechnik GmbH

“Ortner Cleanroom Unlimited” has been dealing with comprehensive cleanroom technology for more than 30 years and across all industries: from pharmaceutical, medical, BSL (“Bio Safety Level”) high-security laboratories and food production to the mechatronics, electronics, and microelectronics sectors. For around 20 years now, Ortner Reinraumtechnik GmbH has specialized in the development and manufacture of equipment, systems, and processes for creating microbiological and particulate cleanliness.

The group places particular emphasis on research and development, invests a great deal of money and personnel in this area, and cooperates with a number of top-class universities and research institutes. Working with microorganisms such as spores, bacteria, viruses, and other pathogens as well as the development and application of appropriate decontamination and sterilization procedures are part of the company’s core business.

Our specialists will be happy to answer your questions. Please contact us at reinraum@ortner-group.at or call +43 (0)4242 311 660.