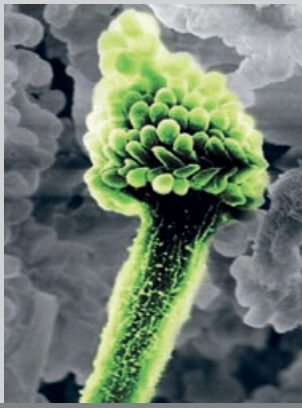




## DISINFECTION SYSTEMS

Make raw materials  
and bakery products  
keep for longer!





## BÄRO disinfection systems – innovative solutions for the baking industry

Air hygiene plays a key role in the keeping qualities of raw materials and bakery products as microorganisms that cause spoilage are able to spread easily via the air, thus causing contamination. The disinfection systems from BÄRO provide an efficient remedy to this problem.

At the heart of these systems are UV-C emitters with a primary emission wavelength of 253.7 nm. The particular advantage of these systems is that they produce no ozone.

### **UV-C technology – the most natural form of disinfection**

UV-C radiation is a natural component of sunlight. The anti-bacterial effect of this radiation has been known for a long time. A wavelength of 253.7 nm triggers changes in the genetic material of the microorganisms, causing them to die. Unlike other systems, no thermal or chemical treatment is necessary.



### **Spoilage of raw materials and bakery products**

Microorganisms play a useful role in the production of bakery products (consistency, formation of flavourings). However microorganisms also attack bakery products and cause damage or even spoilage.

In addition to bacteria and yeasts, moulds are the main cause of this spoilage. Contamination of bakery products usually occurs after the baking process in the following production steps such as cooling, slicing, transport and packaging.

Within this production and storage chain the bakery products are contaminated with mould spores present in the air. The often extremely high level of air contamination is due to the naturally high spore content of flour, old bread deposits, contaminated air conditioning systems etc. Air conditioning systems in particular spread spores to all production and storage areas.

This results in considerable contamination of the bakery products with fungal spores which can mushroom into a colourful bed of fungus within a very short time – at the latest in the customer's kitchen. This visual sign of spoilage is accompanied by the stale and musty smell of mould.



Extremely high standards of air quality must be observed in the production of sliced bread and packaged bakery products of all kinds. Fungal colonisation of sliced bread is caused mainly by spores of the *Aspergillus* and *Penicillium* varieties of fungus. As these

spores are transmitted almost exclusively through the air, air disinfection using BÄRO's innovative technology is highly recommended, particularly in the processing and packaging rooms, which are usually separate.

### Air disinfection – for guaranteeing the quality of bakery products

BÄRO's UV-C air disinfection systems can reduce the proportion of microorganisms in the air by up to 99.9%. Air from the room is drawn in, disinfected by means of UV-C radiation and released again. As the systems are fully encapsulated, no radiation escapes from the units. The release of dangerous ozone familiar from traditional units is prevented by the use of special glass which encases the sources of radiation. This means that BÄRO UV-C-systems can be used in continuous operation without any damage to health or products.

### Types of microbiological spoilage of bakery products

Type of micro-biological spoilage	Symptoms	Main microorganisms involved	90% disinfection mWs/cm <sup>2</sup>	99,9% disinfection mWs/cm <sup>2</sup>
Ropy	greasy, moist crumbs	<i>Bacillus subtilis</i> <i>Bacillus licheniformis</i>	12.0	36.0
Chalky	white spots	<i>Monilia variabilis</i> <i>Saccharomycopsis fibuligera</i> <i>Candida spp.</i>		
Red discolouration	red spots on the bread	<i>Monascus ruber</i>		
Mould	Mycel formation on the bakery products	<i>Aspergillus flavus</i> <i>Aspergillus niger</i> <i>Aspergillus nidulans</i> <i>Aspergillus fumigatus</i> <i>Alternaria alternata</i> <i>Geotrichum candidum</i> <i>Mucor mucedo</i> <i>Mucor racemodus A</i> <i>Mucor racemodus B</i> <i>Penicillium expansum</i> <i>Penicillium stolonifer</i> <i>Rhizopus spp.</i> <i>Thamnidium elegans</i> <i>Neurospora crassa</i>	60.0 132.0    65.0 17.0 17.0 13.0  111.0	180.0 396.0    195.0 51.0 51.0 39.0  333.0

# BÄRO disinfection systems – for the protection of your products

## Air disinfection – preventing complaints

Installing BÄRO disinfection systems helps you achieve high quality products and thus prevent complaints that can damage your reputation and image. No producer of bakery products can afford frequent complaints, particularly with regard to the large retailers. Potential consequences are the loss of listings and thus a large fall in sales.

BÄRO disinfection systems ensure that you comply with the requirements of consumer protection laws and VDI 6022 in your hygiene and air management. The systems make a major contribution towards the fulfilment of HACCP concepts. The positive contribution to IFS certification also deserves a mention here.

## Made-to-measure air disinfection

BÄRO has developed a UV-C disinfection unit in compliance with protection class IP 54 (protected against dust and splashing water) for those production areas that regularly need to be washed with water. A further advantage of this unit is the increased air flow rate – which also makes the unit suitable for use in larger rooms.

With the development of special UV-C disinfection modules the disinfection of air directly above existing or planned HVAC equipment is also recommended. The power output of these modules is tailored to the size of the room and specific requirements and they work extremely effectively.



## BÄRO UV-C disinfection systems specially for the production of bakery products

### 7 benefits for your success:

- The shelf life of bakery products is greatly increased
- Complaints are reduced significantly
- The freshness of the products can be guaranteed for longer
- Hygiene standards are safeguarded
- The products retain constant weight and colour for longer
- Warehousing and logistics costs are reduced
- Product quality as a whole is increased



## Research and development

Specialists are constantly working on improvements and innovations in our own research and development centre in Leichlingen in the Rhineland region of Germany – naturally in consultation with customers and suppliers.

## Safety – the utmost priority

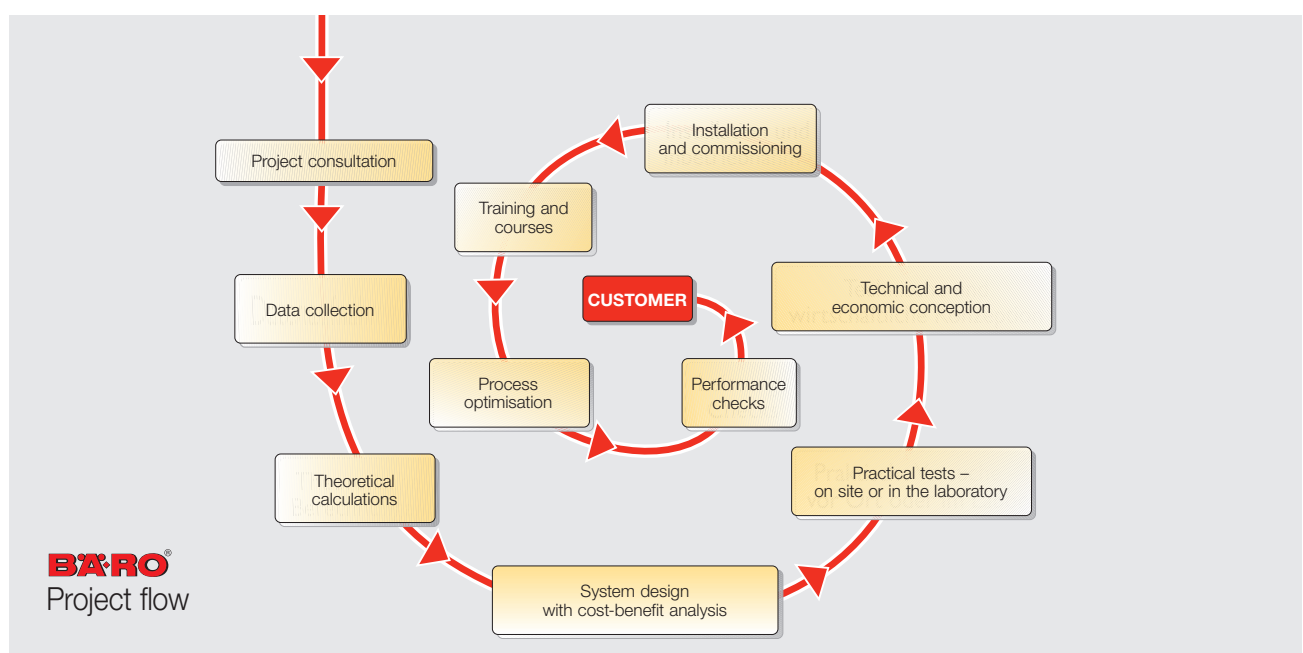
All systems, units and components comply with the highest safety standards. Thorough checks, clear instructions and commissioning by our staff are a matter of course whenever equipment is installed.

## Planning and consultation

The BÄRO application specialists plan your system together with you and advise you in order to find the right solution. BÄRO experts are always at your side, starting with on-site measurements through laboratory tests and feasibility studies and right up to installation.

## Service

Our aim is to ensure that your investment pays off. For this reason we also look for further opportunities to reduce your costs and optimise processes after the installation. If the system malfunctions, the BÄRO service team will be there to assist you as quickly as possible.



Fax + 49 (0) 2174 799-799

**We are interested BÄRO disinfection units and systems on a UV-C basis.**

We would like to be contacted by a BÄRO consultant who can give us detailed information on the use of the disinfection units and systems.

Please send us detailed information on BÄRO's disinfection technology.

We are not currently interested in disinfection technology on the basis of UV-C, but we would like further information concerning innovations in this field.

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Sender

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Surname, first name

\_\_\_\_\_  
Company

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Town, postcode

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