



VIESSMANN TECHNOLOGIES

## CLEANROOMS FOR THE PHARMACEUTICAL INDUSTRY



# Innovative cooling locks integrated into cleanrooms for the production of nutritional solutions at B.Braun in Melsungen

B. Braun is one of the worlds leading provider of solutions for the healthcare market. Part of the portfolio are patient-individual nutritional solutions for parenteral use (compounding) which contribute as an important element to clinical nutrition of patients.

Viessmann contributed to the success of the project with a number of new developments, in particular to the implementation of an ambitious interior design concept in a very short implementation period.

The new compounding factory meets highest quality and recent technical standards. To facilitate the unloading process of compounding products a horizontal flow refrigeration tunnel has been set up. The project reduces logistics routes and saves time, simplifies the production process and guarantees an uninterrupted cold chain.

Viessmann offers tailor-made individual cleanroom solutions for life sciences, pharma industry and hospital area.

## TECHNICAL DETAILS:

- + 1050 m<sup>2</sup> cleanroom walls MB 50 in class B + Adjoining rooms
- + 380 m<sup>2</sup> cleanroom ceiling walkable
- + 145 m<sup>2</sup> cleanroom ceiling not walkable
- + Full glass ventilation shafts 4 pcs. a 3.6 m
- + 2 pcs Active material hatch, full glass windows, clear opening 1,5 x 0,6m







# GMP-compliant solutions for pharmaceutical applications



Modular cleanrooms from Viessmann Technologies enable customised individual solutions with maximum industrial prefabrication.

Our portfolio includes all functional elements for GMP cleanrooms.

- |          |                              |           |                                    |
|----------|------------------------------|-----------|------------------------------------|
| <b>1</b> | System walls                 | <b>7</b>  | Laminar flow modules               |
| <b>2</b> | Ceiling and lighting systems | <b>8</b>  | Control and monitoring systems     |
| <b>3</b> | Cleanroom glazing            | <b>9</b>  | Lock fitments                      |
| <b>4</b> | Door systems                 | <b>10</b> | Ultra clean workspaces             |
| <b>5</b> | Media modules                | <b>11</b> | Explosion and radiation protection |
| <b>6</b> | Lock systems                 | <b>12</b> | Cleanroom flooring                 |

■ We are a competent partner for segment-specific solutions in all areas of cleanroom technology. With our multidisciplinary system solutions, we are one of the leading companies in the industry. We take into account the constantly increasing demands on quality, precision, sterility and complexity of products in our development processes. No two projects are the same - this is how our customers benefit from individual solutions that protect people, processes and products from harmful or undesirable environmental influences.

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# Personnel and product protection in GMP cleanrooms



## PHARMACEUTICAL INDUSTRY

Customised cleanroom solutions for GMP classes A to D

The high demands of pharmaceutical production span the entire value chain, from the input of raw materials to sterile filling.

Viessmann provides customised cleanroom solutions in all GMP cleanliness classes. We provide a combination of classic cleanrooms and process-specific stand-alone solutions and the entire infrastructure in EU GMP classes A to D.

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## MEDICAL TECHNOLOGY PRODUCTION

Cleanroom solutions for various complex applications of medical technology producers- Medical technology is one of the most dynamic developing sectors of the life science industry today.

We meet individual requirements by combining traditional mechanical precision manufacturing, plastics processing, electronics and nanotechnologies with a broad portfolio of process-specific cleanroom solutions.



## LABORATORIES FOR RESEARCH AND DEVELOPMENT

Cleanrooms provide the necessary flexibility for each research project.

Cleanroom laboratories for research and development in all areas of high-tech industry are key to any technological advancement. Users expect a very high level of occupational safety, but also the greatest possible flexibility to adapt their laboratory space to the specific needs of their research projects.

# Controlled hygiene zones in the food industry



## FOOD PRODUCTION

Cleanroom conditions for compliance with hygiene standards

Our years of experience in planning, producing and supplying custom cold rooms and cleanrooms provide our customers from all areas of the food industry with confidence in the implementation of their projects.

Uncompromising compliance with hygiene standards and our sustainable, certified components are all part of the success of the project.



## COSMETICS PRODUCTION

Increasingly, cosmetic products are manufactured in controlled clean conditions. As well as sustainable and natural ingredients, producers are increasingly using cleanroom solutions for their tested and certified products.

Viessmann Technologies guarantees comprehensive product and personnel protection as well as the necessary refrigeration at all stages of the process.

# Comprehensive system components for clean and controlled rooms



## MODULAR ROOM SYSTEMS

- + A wide variety of wall and ceiling systems for all functional and architectural requirements  
Tested and certified by internationally recognised organisations



## CONTROLLED ACTIVE PASS BOXES

- + Actively ventilated lock systems for personnel and material with continuous monitoring of physical parameters including particle concentration



## REFRIGERATION AND DESINFECTION ROOMS

- + GDP-compliant cooling equipment for temperature-sensitive pharmaceutical products
- + Controlled refrigeration and storage



## MONITORING AND CONTROL SYSTEMS

- + Independent monitoring and historical recording of relevant room parameters, door conditions, fan and filter monitoring



## STAFF AND PRODUCT PROTECTION

- + Stand-alone units for sampling and weighing pharmaceutical products / API under sterile conditions





#### SAMPLING CABIN

- + Modular, industrially prefabricated sampling cabins, also for installation in uncontrolled environments, including thermodynamic air treatment

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#### MEDIA SUPPLY SYSTEMS

- + Wall and ceiling-integrated media modules
- + GMP-compliant double partitioning
- + Flexible 'point of use' design
- + Internal media supply in the cleanroom components



#### LABORATORIES FOR NUTRITIONAL SOLUTIONS

- + Cleanroom laboratories for the production of small batches of liquids for artificial patient nutrition, including the necessary refrigeration equipment



#### GMP PHARMACIES

- + GMP areas in hospitals for the production of patient-specific pharmaceuticals
- + Special solutions for the production of cytostatics



#### CLEANROOM FLOORS

- + High-quality, conductive and resistant floor coating systems for all fine chemical and pharmaceutical processes

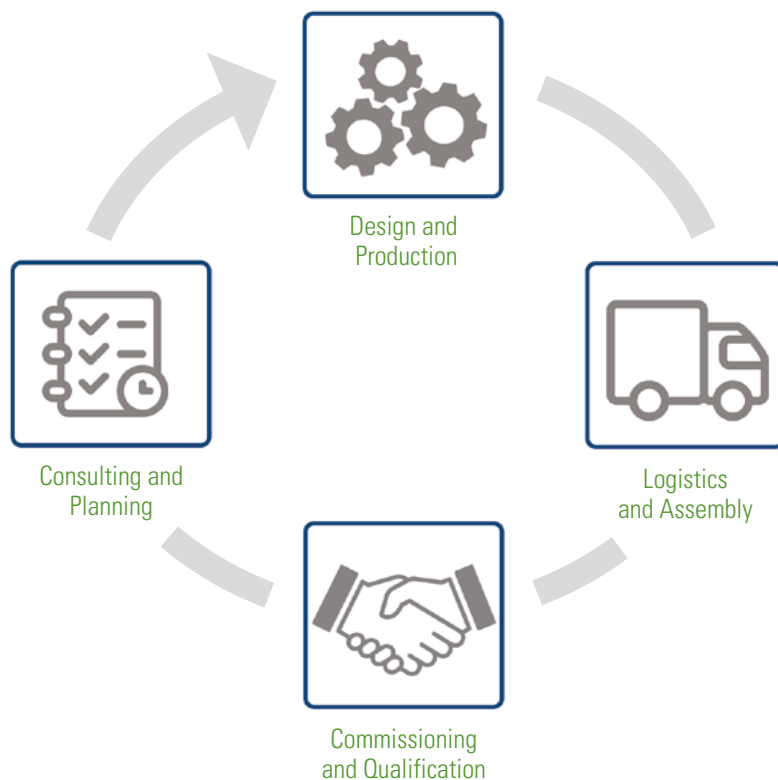
# All-in-one provider for GMP cleanrooms

## Consulting and Planning

- Optional needs-based consulting and design
- Technical execution planning for cleanrooms and GMP compatible areas
- Individual project consulting from the start by a personal project manager
- Individually hand-picked project team

## Design and Production

- Development of individual solutions based on modular Viessmann components and precise technologies
- Certified quality made in Germany
- Modular design for quick and easy installation and flexible adaptation to changes in medical technology and room layouts



## Logistics, Handover and Assembly

- Professional employees with practical experience and our logistics partners ensure fast and seamless delivery processing
- Our experienced assembly teams quickly install premium cleanrooms with consistent quality around the world
- Expert in handling a project from logistics packaging and customer clearance

## Commissioning and Qualification

- Complete verification of physical and microbiological parameters
- Professional commissioning and handover

## REFERENCE PROJECTS



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**1** Jamjoom Pharamceuticals,  
Saudi-Arabia

**2** Develco Pharma AG, Schopfheim,  
Germany (© Fotodesign Andreas Braun)

**3** B. Braun, Melsungen, Germany

**4** Sigmapharm, Hornstein, Austria

**5** Red Cross blood bank, Linz, Austria

**6** GEHE Pharma Handel, Nuremberg,  
Germany



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