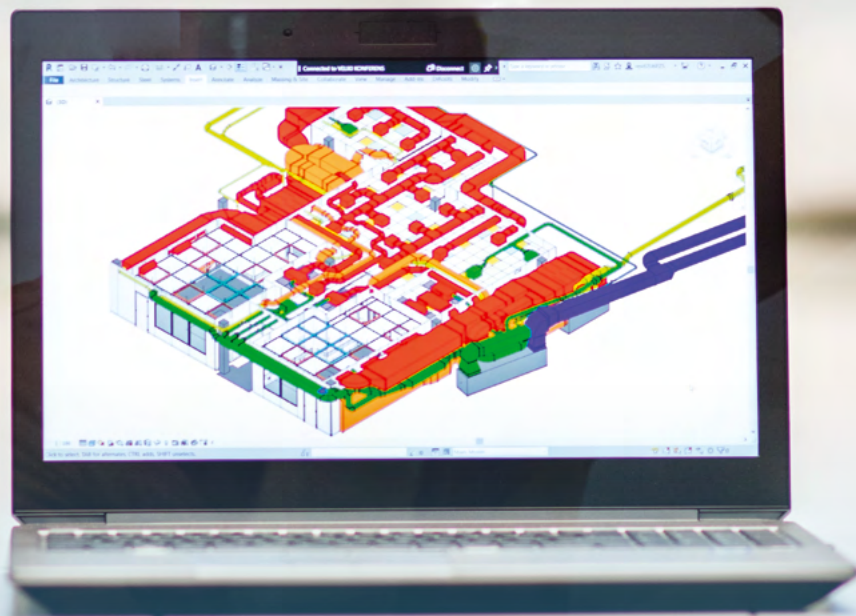


T



CLEANROOM  
ENGINEERING



# INTRODUCTION

As a company we are devoted to creating ideal work environments with minimal expenses and to developing products that can satisfy even the most rigorous of quality and energy efficiency standards. Through compliance with sustainable development principles, our efforts are aimed at Termovent's future evolution.

Cleanroom is an environment that has a controlled level of contamination that is specified by the number of particles per cubic meter for the appropriate particle size.

Termovent specializes in production of modular panel systems, which are used in the field of clean room technology.

The whole system is aligned with GMP and FDA directives, as well as ISO 14644 standard. Compliance with applicable regulations in the field of clean room technology enables its use in rooms from ISO 9 to ISO 1 class (GMP classes A, B, C and D).



# OVERVIEW

Production facility:  
**Kladovo, Serbia**

**PART OF  
SWISS  
CORPORATION  
ARBONIA  
GROUP**

HQ  
**Belgrade  
Serbia**

Founded  
**1993**

Modular component systems are easily integrated with all other systems. By combining a variety of materials in panel production for cleanrooms, Termovent company offers a vast range of use in:

Pharmaceutical industry,  
Micro-electronics,  
Chemical industry,  
Food industry,  
Health facilities,  
Laboratories etc.

A team of young experts that is responsible for cleanrooms development consists of a group of people that participated in international competitions throughout Europe and Asia, and with their experience, hard work and devotion they are responsible for the great satisfaction of our partners.

Through the pursuit of modernization and contemporaneous business, the entire production and design system is based on automation and BiM design.





# CONTENTS

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# TURNKEY PROJECT EXECUTION

## CONSULTING & PLANNING

## ENGINEERING & DESIGN

## PROJECT & CONSTRUCTION

## EQUIPMENT & SYSTEM PRODUCTION

## COMMISSIONING, QUALIFICATION & VALIDATION



## CONSULTING AND PLANNING

- Familiarization with Client's Requirements and Analysis
- Documentation Package for Tendering and Execution
- HVAC Systems
- BMS / EMS Systems
- Black Utility Systems
- Clean Utility Systems
- Clean Room Modular System
- Qualification and Validation Package

## ENGINEERING AND DESIGN

- Concept Design
- Basic Design
- Detailed Design
- Cost Optimization
- PLC, HMI, SCADA Application Software Design
- Project Planning and Scheduling
- Equipment Procurement Management
- Factory Simulations and Factory Acceptance Test (FAT)
- REVIT and MAGIC CAD software packages
- Health and Safety Plan

## SITE MANAGEMENT

- Site Preparation
- Equipment / Material Delivery
- Sorting and Stock
- Assembly and Installation
- Construction Work
- Project Execution Level following
- Site Coordination with Other Contractors
- Implementation of Safety Procedures
- Quality Control and Quality Assurance
- Commissioning and Validation Phase Planning
- Budget Tracking

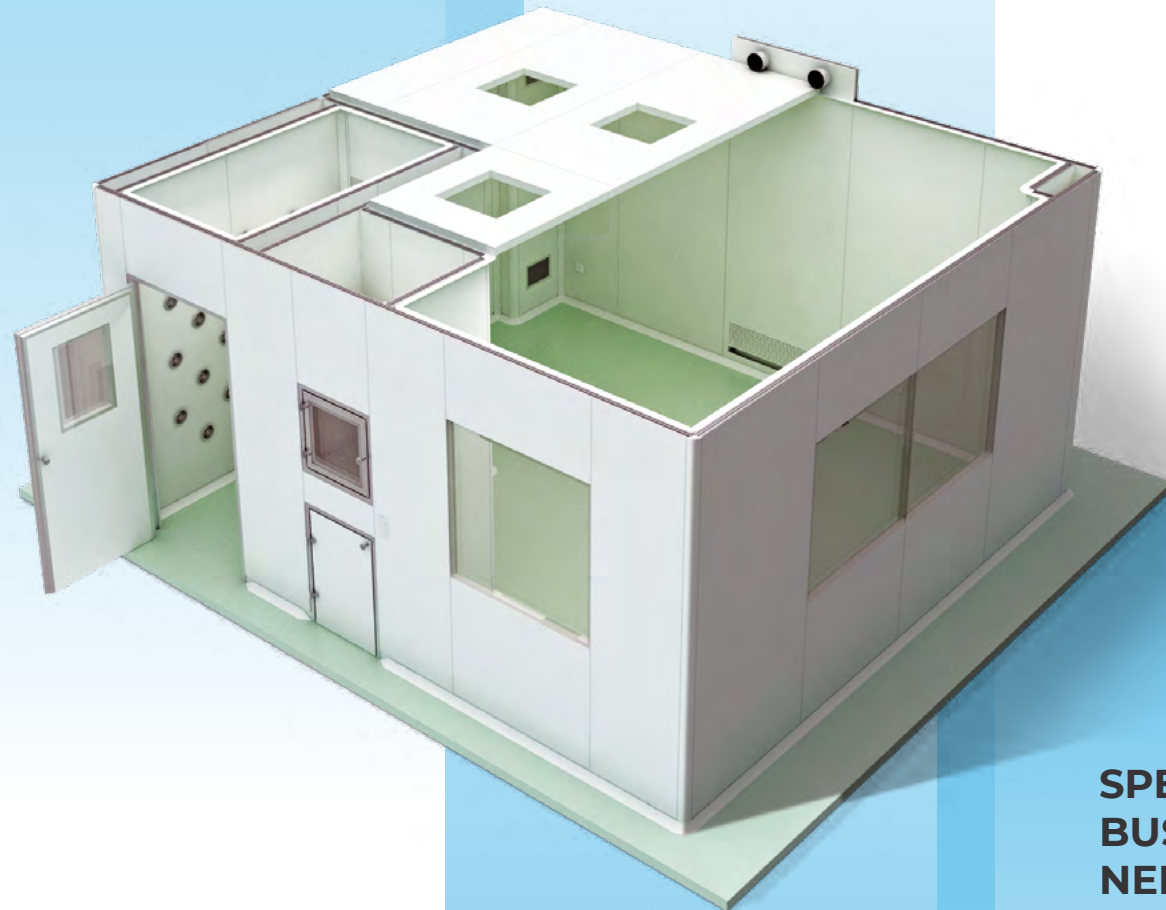
## COMMISSIONING, QUALIFICATION AND VALIDATION

- Equipment Parameters Set-Up
- IO Signal Check
- System Start-up and Commissioning
- System HVAC Balancing
- Site Acceptance Test (SAT)
- As Built Documentation
- Qualification and Validation
- Installation Qualification (IQ)
- Operational Qualification (OQ)

# FAST GROWING INDUSTRIES

## LIFE SCIENCE AND CHEMICALS INDUSTRY

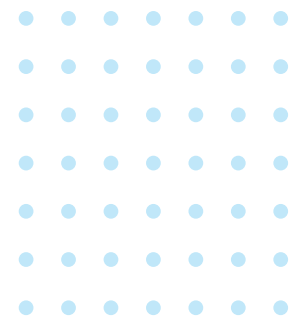
Pharmaceutical  
Biotechnology  
Food and Nutrition  
Consumer Care  
Chemicals



**SPECIFIC BUSINESS NEEDS**

## ADVANCED TECHNOLOGY INDUSTRY

Batteries  
Semiconductors  
Photovoltaics



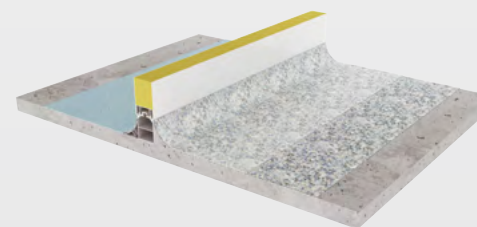
**WALL**



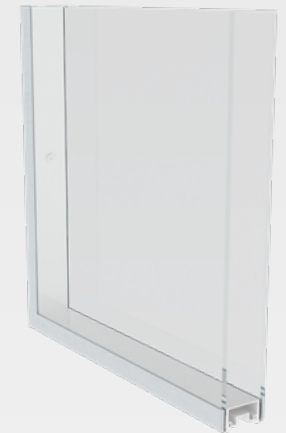
**CEILING**



**FLOOR**



**GLAZING**



**DOOR**



**ACCESSORIES**

AIR SHOWER  
PASS BOX  
PROTECTION  
GRIDS  
LAF  
FFU





# REFERENCES



**PFIZER GLOBAL MANUFACTURING**  
Puurs, Belgium



**DISHMAAN LABORATORIES**  
Veenendaal, Netherlands



**ZOETIS**  
Louvain La Neuve, Belgium



**KATOD**  
Novosibirsk, Russia



**GRAND MEDICA**  
Novokuznetsk, Russia



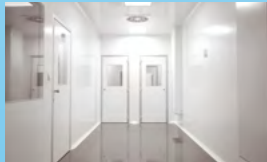
**ASPECTUS PHARMA**  
Skopje, North Macedonia



**WELLPHARMA MEDICAL SOLUTIONS**  
Abu Dhabi, United Arab Emirates



**TRENKER LABORATORIES**  
Nivelles, Belgium



**PHARMASYNTEZ**  
Bratsk, Russia



**BILTHOVEN BIOLOGICALS**  
Bilthoven, Netherlands



**PURNA PHARMACEUTICALS**  
Puurs, Belgium



**RASAN PHARMACEUTICALS**  
Sulaymaniyah, Iraq



**SPIMACO**  
Riyadh, Saudi Arabia



# PFIZER GLOBAL MANUFACTURING

Puurs, Belgium

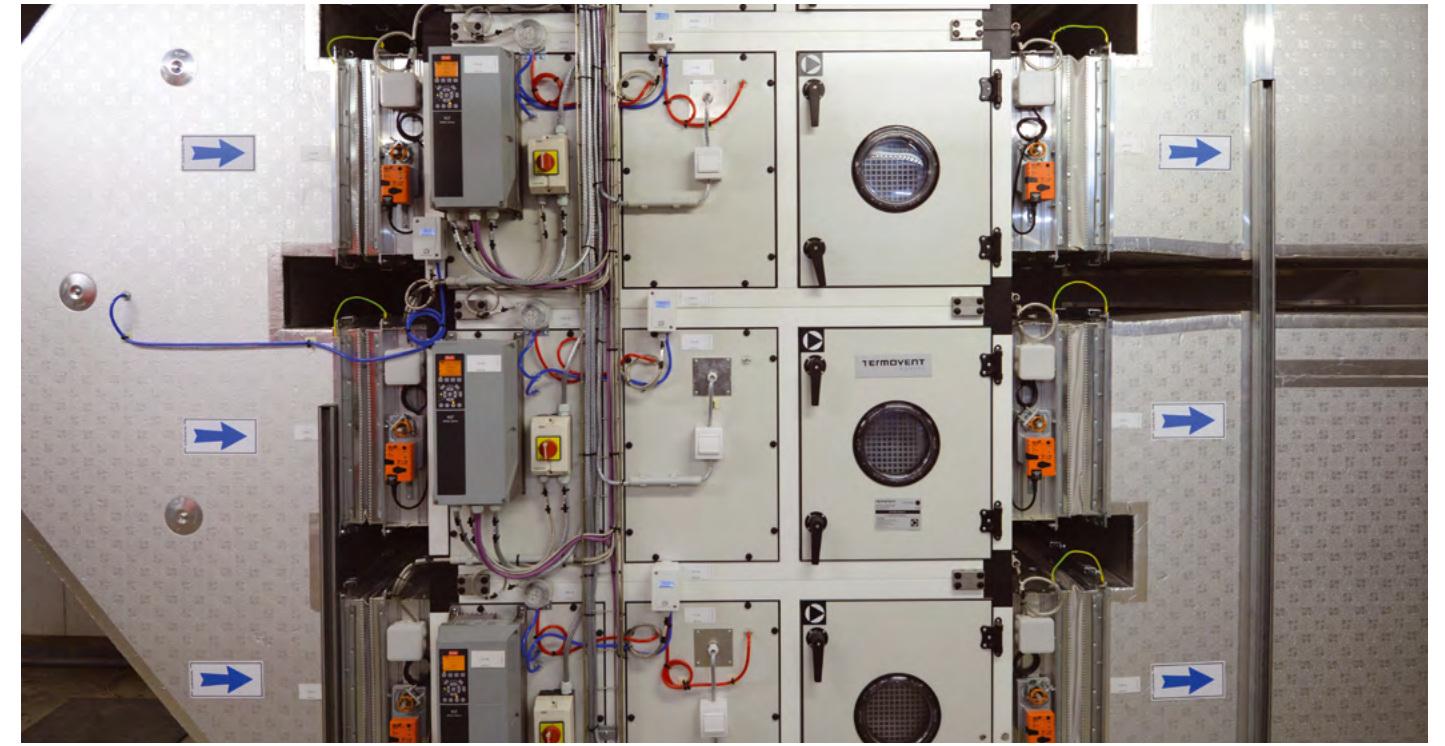


**PROJECT:**  
Pilot Plant, Focus Cell 2, Formulation Boots, Flexible Cartridge Center

**MISSION:**  
Design and installation of HVAC ductwork with associated equipment

Room class  
ISO5 / ISO6 / ISO7 / ISO8

One of worlds biggest pharmaceutical companies



## ZOETIS

Louvain La Neuve, Belgium



**PROJECT:**  
HVAC system for NGF supporting equipments and upgrade

**MISSION:**  
Complete HVAC design, engineering, installation, Revit design, BMS / EMS system, iFix SCADA HVAC, EMS qualification / validation BMS commissioning

Room class  
A, B, C, D

Revamping project for 3/4 of production area completed in 6 weeks



# PURNA PHARMACEUTICALS

Puurs, Belgium

PURNA  
PHARMA

**PROJECT:**  
Production & Packaging

**MISSION:**  
HVAC design, engineering and installation  
BMS system, HVAC, BMS commissioning

Room class  
D, NC

First project  
in EU done in  
accordance to  
ATEX directive



# BILTHOVEN BIOLOGICALS

Bilthoven, Netherlands

Bilthoven Biologicals  
Cyrus Poonawalla Group

**PROJECT:**  
HVAC system for IPV Manufacturing facility  
in A-7 Building

**MISSION:**  
HVAC design review, engineering, installation  
HVAC qualification / validation  
BMS commissioning

Room class  
BSL3 laboratory, C, D, CNC, UC

BSL3 area  
Full welded inox  
ducting on the  
extraction with  
"0" leakage



# PHARMASYNTEZ

Bratsk, Russia



## PROJECT:

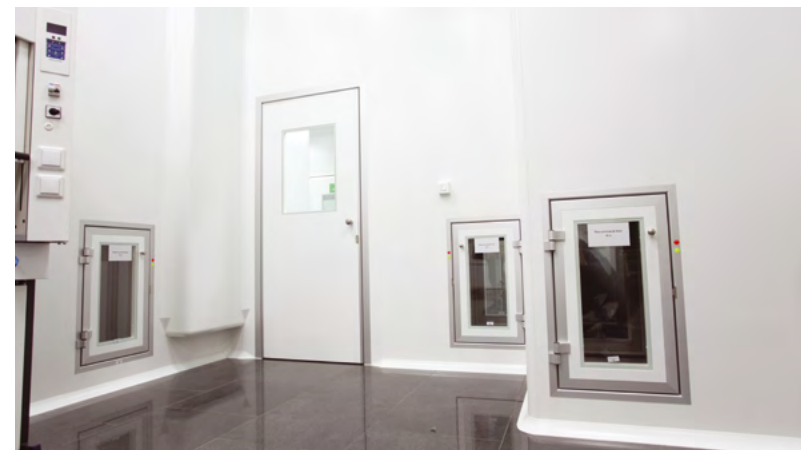
Production, delivery and installation of HVAC system's equipment for clean room environment

## MISSION:

Clean room design, engineering, installation  
Design, engineering, installation of complete HVAC systems  
BMS / EMS system  
HVAC, EMS, Clean room qualification / validation

Room class  
ISO8

This project is based in Siberia, 7000 km from Termovent HQ



# KATOD

Novosibirsk, Russia



## PROJECT:

HVAC systems for clean room production of Night Vision Device

## MISSION:

Clean room design, engineering, installation  
Design, engineering, installation of HVAC systems  
BMS system, HVAC, BMS commissioning

Room class  
ISO5 / ISO6 / ISO7

The first ISO5 CleanRoom project for night vision equipment production



# WELLPHARMA MEDICAL SOLUTIONS

Abu Dhabi, United Arab Emirates



## PROJECT:

Delivery of the Control Boards, HVAC systems for The Intravenous Solutions (IV) production plant in Abu Dhabi

## MISSION:

Engineering and installation of HVAC systems  
BMS / EMS system, HVAC, BMS commissioning  
EMS qualification / validation

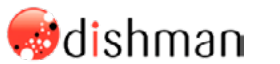
Room class  
C, D

UAE's first  
production  
of infusion  
solution



# DISHMAN LABORATORIES

Veenendaal, Netherlands



## PROJECT:

VDA Production Lab, Dishman

## MISSION:

Design and installation of HVAC ductwork with  
associated equipment  
HVAC commissioning

Room class  
PbOEL Class 1, PbOEL Class 3

High  
containment  
cGMP  
laboratory



# TRENKER LABORATORIES

Nivelles, Belgium

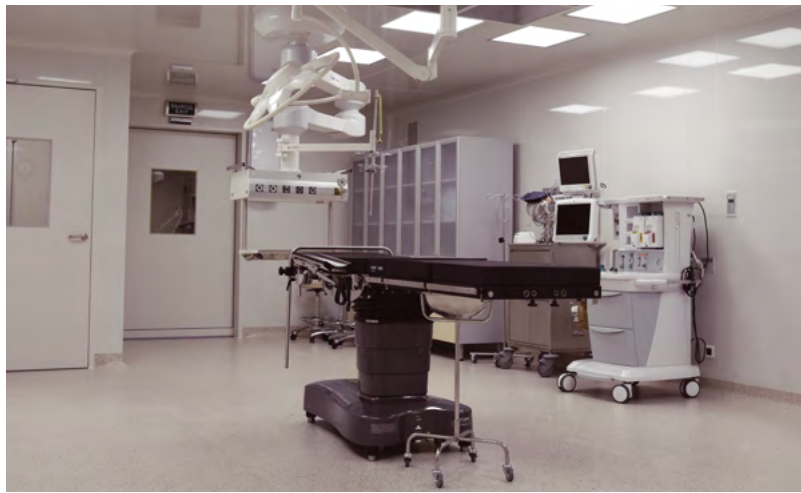


**PROJECT:**  
HVAC systems for Trenker New Laboratories

**MISSION:**  
HVAC system engineering and installation  
BMS system, HVAC qualification / validation  
Warehouse temperature mapping  
BMS commissioning

Room class  
D, CNC, Warehouses zone

Source of hot and chilled water provided by one four-pipe heat pump



# GRAND MEDICA

Novokuznetsk, Russia



**PROJECT:**  
Complete new hospital in Novokuznetsk

**MISSION:**  
Clean room design, engineering, installation  
HVAC system engineering and installation  
BMS system, HVAC qualification  
HVAC commissioning

Number of operating rooms:  
10 operating rooms

First purpose of the building was shopping center



## BESI

Radfeld, Austria



### PROJECT:

Implementation of clean rooms and accompanying

### MISSION:

project documentation, production of clean rooms and Air Handling Units (AHU), delivery and installation of system equipment (HVAC, Black Utility, Electrical, BMS/EMS), commissioning and validation of the system

Room class

Room classes: ISO4, ISO5, ISO7

First engineering project in the semiconductor industry



## BIONIKA

Skopje, North Macedonia



### PROJECT:

Expansion of production capacity for pharmaceutical company Bionika

### MISSION:

Complete ductwork with associated elements, delivery and installation of air handling units and clean rooms, hot and cold water pipelines, compressed air pipes with associated fittings, steam boiler, steam distribution pipelines, electrical cabinets for the fields of energy and automation, cabling of peripheral equipment (sensors, actuators, pressure switches, etc), steel structure for bearing external channels

Number of operating rooms:

Room classes: C, D

Termovent cooperated with the company Bionika for the first time in 2011. In 2021, we were pleased to renew this cooperation.



**Termovent Komerc - recommendation letter**

"Termovent Komerc company from Belgrade, Serbia was working for Bilthoven Biologicals B.V. company in period 2012/2015 in next projects:

- 2012 / 2013 HVAC installation for **U3** building  
For this project Termovent was responsible for delivery and installation of Air Handling Units, produced by them, sensors and air ducts with all accessories for distribution and regulation. Termovent's engineers gave us full assistance during commissioning and start up this project.
- 2015 – HVAC installation for **G7** building  
For this project Termovent did main design of HVAC installation, delivery and installation of HVAC equipment, produced by them, ducting, piping with all accessories, balancing air and water side, commissioning, IQ/OQ, measuring, and start up.
- 2015 – HVAC installation for **A7** building – BSL3 area.  
For this project Termovent is responsible for all activities regarding general design reviewing, delivery and installation of HVAC equipment, which is made by them, installation of ducting with elements for air distribution and regulation, electrical cabinets for power and automation, cabling, signal checking, software for BMS, balancing air and water side, commissioning, IQ/OQ, measuring, and start up.  
Contract value is more than 2.300.000,00 euro.

In these projects Termovent Komerc has done all tasks: designing, FAT in their factory, installation, commissioning, IQ/OQ, and start up, in time, without remarks and in a really excellent quality.

We are very satisfied with Termovent's work and organization.  
This company has our full recommendation."

Bilthoven Biologicals  
Cyrus Poonawalla Group  
P.O. Box 457  
3720 AL BILTHOVEN  
10-12-2015



Ets. Beaupain  
Mr. Olivier Burguet



Pfizer NV  
Rijksweg 12  
2870 Puurs  
Belgium  
Tel: 03 / 890.92.00

Puurs, August 3<sup>rd</sup> 2009

I hereby confirm that Termovent – Komerc successfully completed the new HVAC system for a critical filling line in our plant in Louvain-La-Neuve.

The scope of the works included qualification and commissioning and the respective documentation according to the GMP requirements and the internal Pfizer procedures.

The works were completed in due time, within budget and to the satisfaction of the plant management.

Pfizer Global Engineering

Jean Nomes  
Director PGE Europe

# PURNA PHARMA

Puurs, 15 October 2013

Purna Pharmaceuticals NV  
Rijksweg 17  
2870 Puurs  
Belgium

We hereby confirm that company Termovent-Komerc, for needs of our pharmaceutical factory deduced a complete HVAC system, with responsive IQ, OQ documentation, commissioning and fitting requested parameters.

HVAC system is generated according to valid GMP demands.

All work is generated according to Contract No's: 05.102.3/02.12, 05.481.6/05.12, 05.315.5/05.12, 05.630.3/10.12 and 05.1008.7/1.13.



PURNA PHARMACEUTICALS NV

Raymond Van Gucht  
Chairman of the board

Zoetis Belgium SA T +32 10 470211  
Rue Laid Burniat 1 F +32 10 452006  
B 1348 Louvain-la-Neuve  
BELGIUM



Termovent Komerc  
Subotička 23,  
11000 Beograd  
SERBIA

Louvain-la-Neuve, 10 février 2014

**Thermovent Komerc – recommendation letter**

"Termovent-komerc company from Belgrade, Serbia was working for purpose of Zoetis company in period 2012/2013 (starting in 2007) in next projects:

- P2179, Filling syringes line –(2012),
- P2100, Revamping HVAC for Lyo rooms –(2013),
- P2100 Revamping HVAC for Bloc 200 –(2013),
- P2186 Isolator room –(2013-2014).

In these project Termovent-komerc was responsible for all activities regarding general design, delivery and installation of HVAC equipment, which is made by them, installation of ducting with elements for air distribution and regulation, delivery and installation of electrical cabinets for power and automation, cabling with signal checking, commissioning and start up.

Special organization skills Termovent-komerc company showed in project P2100 – revamping bloc 200 §6 weeks shutdown for 2/3 of our production area), contract value approximately 1.460.000,00 euro. In this project Termovent-komerc has done all tasks: designing, dismantling, FAT in their factory, installation and finally commissioning and start up of all systems in a really short time, and in a really excellent quality.

Our company is satisfied with work and organization of Termovent-komerc company.

This company is finishing its projects in time and quality, and without remarks, which is confirmed with our contract in period of 5 (five) years.

This company has our full recommendation."

Best Regards,

Christophe DUMONT  
Director Engineering  
Zoetis Global Manufacturing and Supply  
B1348- Louvain-la-Neuve  
Phone:+32(0)10470213 or +32(0)10470480



# QUALITY MANAGEMENT SYSTEM

## CERTIFICATES AS THE GUARANTEE OF QUALITY

Termovent is fully committed to meeting the customer's requirements in terms of quality, environmental protection and safety. The set high quality standards are the cornerstone of our operations.

In order to achieve the goals we set at all times, our employees are involved in the processes of continuous improvement and optimization of our products and services. The success of this approach is confirmed by numerous certificates held by Termovent, which guarantee the highest standards to our customers.



### Eurovent Certita Certification

Eurovent Certita Certification Eurovent Certita Certification has certified that Termovent Air Handling Units, Range KK, and Software for calculation of performances SELECT:pro, Trade name TERMOVENT, have been assessed according to requirements of the following standard: OM-5-2017



### CE marking for Termovent AHUs

CE marking for Termovent AHUs Termovent Air handling Units hold CE Marking of Conformity to Machinery Directive 2006/42/EC Annex II, Point A. In addition, Termovent AHUs are designed and produced according to set of harmonized standards: EN ISO 12100:2010, EN ISO 12100:2010, EN ISO 13850:2015, EN 1037:1995+A1:2008, EN ISO 14120:2015, EN 60204-1:2006/A1:2009 and EN 61000-6-2:2005/AC:2005



### ISO 13485:2016

ISO 13485:2016 Certification body SIQ confirmed that Termovent introduced Quality Management System in accordance with ISO 13485:2016 in the field of manufacturing, design and installation of Termovent panels for the construction of clean rooms.



### ISO 9001: 2015

ISO 9001: 2015 Certification body TUV SUD Management Service GmbH confirmed that Termovent introduced Quality Management System in accordance with ISO 9001:2015 standard in the field of manufacturing, installation and sales of equipment for air conditioning, heating and cooling.



### ISO 14001:2015

ISO 9001: 2015 Certification body TUV SUD Management Service GmbH confirmed that Termovent introduced Quality Management System in accordance with ISO 9001:2015 standard in the field of manufacturing, installation and sales of equipment for air conditioning, heating and cooling.



### ISO 45001:2018

OHSAS 18001:2007 Certification body TUV SUD Management Service GmbH confirmed that Termovent introduced Health and Safety Management System in accordance with OHSAS 18001:2007 in the field of manufacturing, installation and automation of air conditioning, heating and cooling equipment and systems.



### AAA Creditworthiness Rating

AAA Creditworthiness Rating Bisnode Serbia awards Golden certificate of Creditworthiness Rating





# TERMOVENT

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