

# Reliable heat technology for production



Units and systems for heating  
and drying of your products

# Trust a professional partner

## 10 reasons that speak for Vötsch

### Competence

Vötsch becomes your competent partner with more than 90 years of experience in the field of heat treatment.

### Individuality

You will receive customised solutions in virtually all areas (vacuum, clean room, handling, control technology, etc.).

### Scope of Service

From different types of heating (electric, gas or oil, heat transfer media, infrared radiation or microwaves), we offer the best solution for your particular process.

### Progressiveness

Modern production methods ensure consistent quality at a high level.

### Product Quality

Our devices are designed for a long-term use.

### Confidence

An extensive range of maintenance contracts and service packages, provides an individual service.

### Service

A competent on-site service is available worldwide with specially trained service technicians.

### Know-how

Regular training sessions ensure a constantly updated knowledge among our employees.

### Expert Knowledge

Benefit from the experience of our employees in Thermal Engineering.

### Reliability/Security

As a member of the Schunk Group (with around 7,900 employees), Vötsch Industrietechnik GmbH is a company with a solid financial basis.



## Units and systems by Vötsch Industrietechnik – Advantages at a glance

- Intensive and uniform temperature distribution in the chamber. All products are exposed to the same temperature conditions irrespective of their shape and size.
- Easily accessible maintenance provisions guarantee shortest service times.
- Short process times due to high heat output and great ventilation.
- Quickly ready for use – by a short recovery time after opening the door.
- Low temperatures and low power consumption due to external wall insulation and high thermal decoupling of the inner and outer housing.
- Reliable and trouble-free operation through the use of high-quality components.
- Comprehensive technical documentation.
- The devices and systems comply with the latest technology and the current standards.
- High flexibility in the standard and customised production range. Thus we are able to uniquely respond to the needs of our customers.



Automobile Technology



Mechanical Engineering



Electricals/Electronics



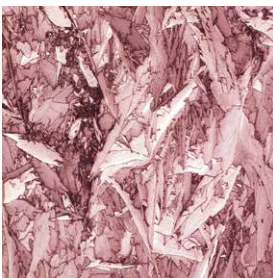
Aerospace



Plastics Technology



Pharmaceutical



Micro-Structure Technology



Chemistry



Micromechanics



Textile/Fiber



Metal,  
Alloy Processing  
Surface Treatment



Glass/Ceramics/Optics

## Wide range of applications . . .

- Automobile Technology
- Chemistry
- Electricals/Electronics
- Micromechanics
- Glass/Ceramics/Optics
- Plastics Technology
- Aerospace
- Mechanical Engineering
- Metal, alloy processing
- Micro-Structure Technology
- Surface Treatment
- Pharmaceutical
- Textile/Fiber
- and other

# Heating and drying ovens VTU and VTL

## Indispensable . . .

Vötsch heating and drying ovens for production and research are found in various sectors of industry, including electronics, automobile production, plastics, metal working, the chemical and pharmaceutical sectors and many other areas.



The standard heating and drying VTU ovens are available in 7 model sizes and can be supplied with a working chamber of between 200 and 8000 litres and nominal temperatures of up to 400 °C.

These robust drying ovens are suitable for variety of heating and drying processes in production and research.

The reliable module construction and the extensive range of accessories available allow them to be employed for a variety of applications. Modern control and monitoring systems, in conjunction with **SIMPATI\*** software specially developed for these units (provided on request), offer the possibility of networking up to 99 devices.

## Advantages at a glance

- Short process duration due to high volume of circulating air
- Short recovery time due to automatic switch-off of heating and circulating air fan when door is opened
- Homogenous temperature distribution, thanks to directed air ductwork
- Application-orientated air ductwork, both horizontal (standard) and vertical (optional).

## Customised Solutions



Drawer-type heating ovens



Heating and drying ovens with rotating drum



### Chamber drying oven (VTL)

Processes which involve drying of surface coatings, mould and impregnated resin varnishes can lead to the air being enriched by released substances (e. g. solvents), forming an explosive compound.

If a source of combustion is present at the same time it can lead to an explosion.



The VTL series from Vötsch Industrietechnik enables you to safely control these heating and drying processes with a design in compliance with the safety requirements of EN 1539.



### Heating and drying oven TU 60/60

### Chamber dryer for paints and varnishes (surface coatings) LTU 60/60

TU 60/60 and LTU 60/60 set standards for daily use, both in production and in the laboratory.



Heating and drying oven for semiconductor manufacturing



Tempering oven for the automotive industry



Tempering oven for silicones

# Explosion-proof heating and drying ovens

In areas such as chemicals, pharmaceuticals, paint and basic industries where often heating and drying is necessary, sometimes unlimited volumes of combustible materials are used.

Heating and drying ovens VTUW and VFT 60/90 are in compliance with the ATEX directives

Special measures of protection against explosion prevent the dangerous explosive atmosphere from igniting and ensure safe and reliable heat treatment processes.



The VFT 60/90 oven is a reliable and compact solution – also for use in the laboratory.



- Explosion-proof drying ovens like VTUW are used for the heat treatment of hydrocarbon products. And in special cases for the treatment of protective gas with condensation and recovery devices for liquids and combustible hydrocarbons.
- VTW drying oven is used for the heat treatment of explosives.

## Customised Solutions



Explosion-proof drying oven with temperature conditioning unit



Explosion-proof oven type VTW



Drying oven for explosives

# Tempering ovens, series VAW



For use at temperatures up to 750 °C . . .

The tempering ovens series VAW represent a construction concept which was proved, tested and enhanced over decades and therefore, is suitable for many heat treatment processes on different materials. The nominal temperatures are 500 °C, 650 °C or 750 °C depending on the model in question.



**Nadcap compliant systems (AMS 2750 D)**

The ovens are suitable for almost all heat treatment processes under normal and controlled atmospheres, e. g.:

- Tempering and hardening of steel
- Ageing and stress-relieving of metals
- Solution annealing of light metals
- Preheating of metals for the subsequent manufacturing processes
- Sintering of plastic materials based on polytetrafluoroethylene basis (PTFE)
- Burning-in of special coating materials after drying
- Burning-off of organic residues on metal parts
- Nadcap compliant systems (AMS 2750 D) for the aerospace industry.



Tempering oven VAV



Tempering oven for inert gas operation

Tempering oven with movable floor and sliding door

# Clean room heating and drying oven VTF

## All Clean . . .

Heating and drying processes, such as e. g. during the production of integrated circuits, under the highest possible degree of cleanliness are a precondition for a low failure rate and hence for profitable results.

The VTF clean room heating and drying ovens meet the stringent requirements of clean room technology.

Optimum production results are guaranteed by the highest purity in the oven – in accordance with clean room class ISO 5, according to DIN EN ISO 14644-1.

The VTF clean room heating and drying ovens are available in 6 sizes with chamber volume 60 to 3,125 l and nominal temperatures up to 350 °C.



## Customised Solutions



Clean room oven drawer-type



Clean room heating and drying oven VTF



# Hot air sterilisers VHS and VHSF



## Safe Products . . .

In the fields of pharmaceuticals, medicine, genetic engineering, biotechnology, food and all life sciences research-intensive industries, total safety is a must.

Hot air sterilisers of Vötsch Industrietechnik offer the right products for the dry-heat sterilisation and are compliant with FDA and GMP requirements and the clean room conditions in conformity with ISO 5 and ISO 7, acc. to DIN EN ISO 14644-1.

### **GMP**

Good Manufacturing Practice

### **FDA**

Food and Drug Administration



# Vacuum heating and drying oven VVT

## The advantages of vacuum drying

- Heat-sensitive material (e. g. pharmaceutical products) will be gently dried
- Shorter drying times due to pressure reduction
- Extremely low oxygen levels in the drying process prevent oxidation
- Vapourizing liquids (e. g. solvents can be recovered)
- Optimum drying conditions for light, powdery products because the product is not swirled (no convection)
- No “skinning” operation on the product to be dried and hence more uniform drying is ensured
- Steam and water generated from other processes can be reused as heating medium
- Flexible heating

Vacuum heating and drying ovens VVT are available with a chamber capacity of 260 to 1,500 l.



## Customised Solutions



VTD vacuum dryer with air circulation and push-through design

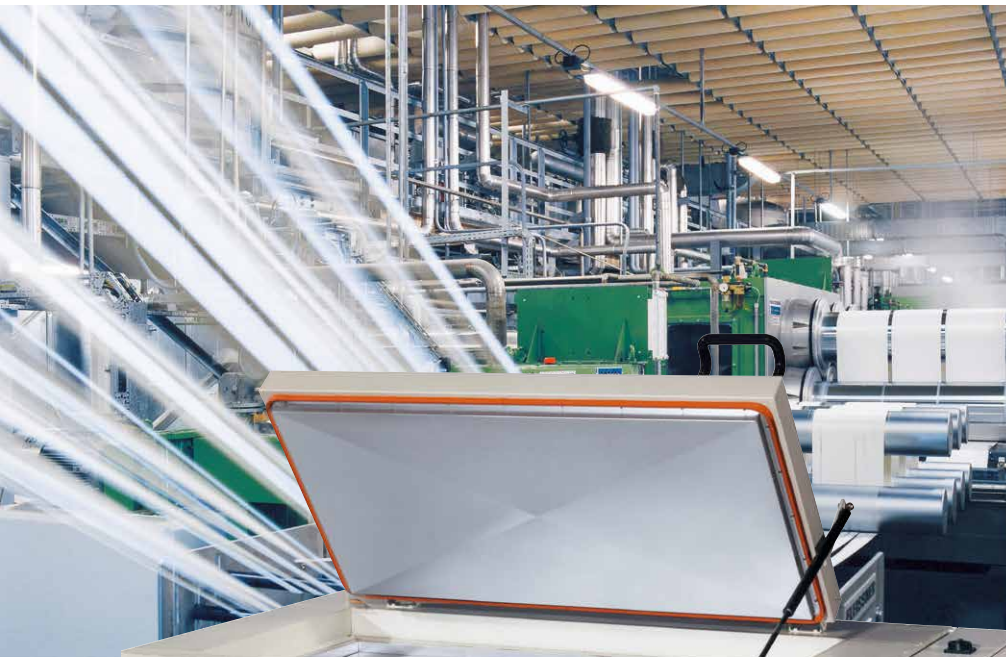


Vacuum heating and drying oven VVT



Vacuum heating and drying oven with circulation air heating

# Chest oven VTUT



## The areas of application

- Warming up and hot storing of machine components such as spinning nozzles and pumps, e. g. in the plastic industry
- Releasing of welding and casting constructions
- Warming up of heavy components
- Pre-heating of materials for subsequent treatment
- Tempering of plastic components

## The advantages

- High nominal temperature of 350 °C
- Easy charging by crane from top
- Short warming-up time
- Also for the drying of coatings according to EN 1539



Chest oven with pneumatic cover lifting device

# Microwave heating and drying ovens VHM



## The future . . .

The KIT (Karlsruher Institute of Technology), EADS and IFB (Institute of Aircraft Design, University of Stuttgart), has developed a microwave system VHM which is an internationally patented system. It is the first to reap the benefits of microwave technology for industrial applications.

The plant is characterised by a very high field homogeneity and thus produces uniform product heating.

Microwaves target volumetric heating of materials. The furnace chamber is not heated by the microwave field.

Energy loss and production time can be greatly reduced.



Microwave VHM 180/300



# Infrared systems for industrial drying and heating processes



The sun as an example . . .

## “Rapid Warming” with IR-Technology

Infrared technology involves rapid heating which transmits energy at the speed of light in the form of electromagnetic radiation without any direct contact or transmission medium (e. g. air, water, etc.). This makes IR heating particularly suitable for especially sophisticated applications (e. g. in vacuum and under clean room conditions).



## Customised Solutions



2-zone continuous oven for hardening carbon fibre composite material components in combination with hot air and infrared heating



Passage oven with infrared

# Ovens tailored to suit your requirements



## Chambers in special sizes

- Recirculation operation
- Fresh air operation
- Protective gas design
- Air distribution systems to ensure uniform temperature distribution and thermal characteristics
- Accessible
- Clean room design

## Door designs

- 1-panel, 2-panels hinged door
- Lift door
- Rolling shutter
- Folding doors in places with space constraints

## Loading systems

- Wire mesh shelves
- Drawers
- Charging trolleys, transport trolleys
- Trolley for rotating drums
- Bogie
- Propulsion and guidance systems for heavy loads
- Mechanical installations such as bogies, conveyor belts, rotary devices



Tempering oven with mobile bogie for use in CFRP helicopter cockpits



Double chamber drying oven in stainless steel and serving-hatch version.



Tempering oven with rolling shutter – 7 m high



Tempering oven with SIMPATI® software and BarCode Scanner



Tempering oven in the CFRP production



Drawer-type oven with 3 drawers and 5 rotary drives each



Drawer-type oven with 1 drawer and 1 rotary drive



Tempering oven with trolley for heavy loads

# Continuous oven VDU/VDL



Continuous oven for tempering pressure regulators, with cooling zone

Component carriers for automatic assembly



Double oven for tempering of plastic parts

Ovens for heat treatment of different materials in automated processes, such as automotive/electronic components, lamps, etc. equipped with vertical or horizontal conveyors.

Component carriers for automated, accurate positioning, loading and unloading are made available on request.

## Conveyor system

- Chains
- Strap hinges
- Wire mesh belt conveyors
- Roller conveyor
- Overhead conveyor
- Tissue and plastic strips
- Pneumatic conveyors



Continuous oven for glue hardening in lamp manufacturing

## Convection chambers

- Vertical or horizontal air flow
- Infrared zones

## Cooling zones

- Fresh air cooling
- Circulating water cooling
- Circulating air refrigerant cooling





Clean room continuous oven for hardening of sealing plugs used in manufacturing of medicine bottles



Oven for tempering of compensators



Oven for glue hardening at dashboards



Oven for vulcanization and forming of vehicle coolant pipes



Clean room oven for curing the coatings on plastic glasses



Continuous oven for hardening of sinter metal parts

# Operation and control . . .

## Operation and control with **SIMPAC\***

All the equipments and installations of Vötsch are equipped with the operation and control software **SIMPAC\***.



## Special Features

- Convenient input of process values and program operation via a colour touch panel and a graphical display
- Program memory for up to 100 programs, with a total of 1,000 interfaces
- Two-stage password protection, against non-authorized access
- Integrated monitoring system for temperature
- Ethernet interface RJ 45 connector
- Operating and fault messages are displayed on the color touch-panel
- Built-in Web server for handling and monitoring in the browser
- Vötsch software package **SIMPATI\*** is PC compatible for convenient management and archiving of records
- Special user interface for use in a production environment (simplified start/stop processes).

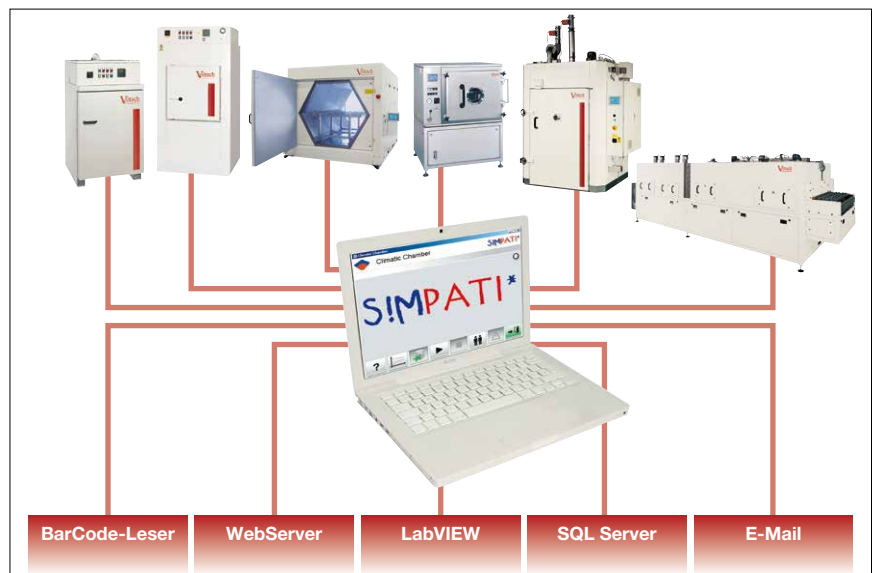
## Vötsch software package **SIMPATI\*** for PC . . .

Vötsch **SIMPATI\*** software is capable of complete documentation and graphical analysis.

With an optional installation of the software on your PC or laptop, the user can create profiles for Windows application and document all process parameters. The full power of the PC can be simultaneously experienced on the Windows.



Complete traceability of the production process with BarCode-reading technology



## Benefits of the software

- Up to 99 units can be networked
- Programming and selection of programmes for automatic processes; no costly programming required
- Not only for operation and control, but also for documentation, visualization and managing of process data
- Print graphical presentation of process data and copy into other programmes for evaluation. Internal interfaces ensure compatibility (with Microsoft Word, Microsoft Paint, Microsoft Excel, National Instruments Labview)
- Access via PC network and your Internet Browser
- Transfer of messages via email to an existing mail server (SMTP)
- Reads programmes, production data (product, operator, unit) via **bar code** (optional)
- **SIMPATI\*** software, pharmaceutical version is compliant with FDA 21 CFR Part 11.

# More than heat . . .

A strong partner – professional and customer-oriented . . .

Vötsch Industrietechnik is a competent partner for thermo-technical equipment and facilities.

We provide a high quality of service in compliance with standard DIN EN ISO 9001.

Competent and customer-friendly



- Individual consultation
- Project design and development
- Production and installation
- Quality control
- Commissioning and instruction/training
- Documentation (DQ, IQ, OQ)
- Service (calibration, re-qualification, maintenance, spare parts, recycling redundant systems)
- Training and workshops

Management System Vötsch

**Herstellereklärung  
FDA 21 CFR Part 11**

Die Produkte der  
**Fa. Vötsch Industrietechnik GmbH**  
Geschäftsbereich Wärmetechnik  
Standort Reiskirchen-Lindenstruth

mit Steuerungen der Typen Simcon 32, Simcon 32 Net, Mincon 32, Simpac ohne integrierten PC, betrieben mit der Software Simpati Pharma Version 4.02 und höher, erfüllen die Richtlinie FDA 21 CFR Part 11, in dem Umfang der in Anlage 1 und 2 beschrieben ist.

Datum	Abteilung	Name	Unterschrift
11.12.08	Geschäftsleitung	Herr Hehl	
11.12.08	Leitung Technische EDV Produktentwicklung	Herr Waither	

Anlagen:  
Anlage 1: Steuerungen  
Anlage 2: Software

FB 1204\_001  
Datei: FB1204\_001.doc    Revision 1  
Geburtsdatum: 0010    Gültig ab: 11.12.08    Ersteller: Vordörh  
Seite 1 von 2

# Our service is 365 days for you – round the clock

Vötsch cares for research and development, production and process technology for reliable quality and safety of its plants and equipments.

Our trained service personnel provide on site service for the installation, commissioning of the plant and operator training.

We consult on all matters pertaining to heating technology.

We offer seminars and workshops in our training centre on current issues.

We come to your place and train your employees on site.



**vötsch**technik

**Test it. Heat it. Cool it.**

Our solutions are deployed around the world in research, development, production and quality assurance of numerous products. Our experts from 22 companies are at your service in 15 countries at 40 locations, ready to provide support to ensure high operational reliability of your systems.

Vötsch Industrietechnik, a subsidiary of Weiss Umwelttechnik is one of the most innovative and significant manufacturers of environmental simulation systems. With these testing systems, we can simulate all climatic conditions around the globe and beyond, under accelerated conditions. Whether temperature, climate, corrosion, dust or combined shock testing: We have the proper solution. We supply systems in all sizes, from standard versions up to customised, process-integrated facilities - for high reproducibility and precise test results.

Vötsch Industrietechnik also offers a wide product portfolio in the field of heating technology. With an experienced team of engineers and designers, we develop, plan and produce high-quality and reliable heating technology systems for virtually any field of application. Products include heating/drying ovens, clean room drying ovens, hot-air sterilisers, microwave systems and industrial ovens. The portfolio reaches from technologically sophisticated standard versions to customised solutions for individual production operations.

A further Weiss Technik company, Weiss Klimatechnik, also offers reliable climate solutions wherever people and machinery are challenged: in industrial production processes, hospitals, mobile operating tents or in the area of IT and telecommunications technology. As one of the leading providers of professional clean room and climate solutions, we deliver effective and energy-saving solutions. Our experts will guide you from the planning to the implementation of your projects.

Weiss Pharmatechnik, a subsidiary of Weiss Klimatechnik, is a competent provider of sophisticated clean room and containment solutions. The product range includes barrier systems, laminar flow facilities, security workbenches, isolators and double door systems. The company emerged from Weiss GWE and BDK Luft- und Reinraumtechnik and has decade-long experience in clean room technology.

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