



# LABORATORY LYOPHILIZER

2 - 15 kg / 24 h

Engineering under high pressure

Made in Germany



**ZIRBUS**  
TECHNOLOGY

# ZIRBUS TECHNOLOGY GMBH

Since its founding in 1984, ZIRBUS technology GmbH, as a German manufacturer, has gained an outstanding reputation on the international market. We manufacture not only freeze dryers but also focus on process technology. A steadily increasing number of customers is putting their trust in Zirbus brand autoclaves and lyophilizers.



## Our customers' satisfaction is our top priority...



**TOGETHER WITH OUR CUSTOMERS, WE CONTINUALLY DEVELOP NEW SOLUTIONS FOR VARIOUS AREAS OF APPLICATION**



**WE TAKE ADVANTAGE OF EVERY POSSIBLE OPPORTUNITY FOR IMPROVEMENT**



**PERFECTION IN SERVICE IS WHAT DRIVES US**



**EFFICIENT AND RELIABLE TECHNOLOGY**



**A PERFECT COMBINATION OF SOFTWARE AND HARDWARE**



**CONSTRUCTION ACCORDING TO THE NEW EU F-GAS REGULATION (EU) NO. 517/2014**

### CERTIFIED QUALITY

**ASME** certified

Recognized refrigeration system specialist in compliance with Germany's Chemical Safety Ordinance (Chemikalien-Schutz-Verordnung).

**Module H** certified

The quality management (QM) system according to DIN EN ISO 9001 implemented and practiced at ZIRBUS technology GmbH provides the framework for our quality- and cost-oriented activities.

**EN ISO 9001**

In addition, a risk management system is a component of the QM system.



**MICROPROCESSOR CONTROL AND TOUCH PANEL**



**SIX VACUUM PORTS, STANDARD TAPER (29/32)**



**MADE COMPLETELY OF STAINLESS STEEL**



**ACRYLIC DRYING CHAMBER**

Technical data	VaCo 2
Condenser volume	5.7 liters
Condenser temperature	< -50° C or < -80° C
Ice condenser capacity	2 kg / 24 h
Max. ice capacity	3 kg
Dimensions of basic unit (W x H x D)	490 x 440 x 470 mm
Weight of basic unit	45 kg at < -50° C, 55 kg at < -80° C



SUITABLE FOR ANY LABORATORY TABLE



EIGHT VACUUM PORTS,  
STANDARD TAPER (29/32)



EASY-TO-CLEAN SURFACE



INTERNAL RACK WITH HEATING FEATURE

Technical data	VaCo 5
Condenser volume	16 liters
Condenser temperature	<-50° C or <-80° C
Ice condenser capacity	5 kg / 24 h
Max. ice capacity	8 kg
Dimensions of basic unit (W x H x D)	800 x 400 x 530 mm
Weight of basic unit	60 kg at <-50° C, 70 kg at <-80° C



**AUTOMATIC DEFROST FOR ICE CONDENSER**



**UP TO 24 VACUUM PORTS,  
STANDARD TAPER (29/32)**



**EQUIPPED WITH MAINTENANCE ROLLERS  
AS A STANDARD FEATURE**



**VARIABLE DISTANCE BETWEEN SHELVES**

Technical data	VaCo 10
Condenser volume	50 liters
Condenser temperature	<-50° C or <-80° C
Ice condenser capacity	15 kg / 24 h
Max. ice capacity	20 kg
Dimensions of basic unit (W x H x D)	750 x 900 x 750 mm
Weight of basic unit	75 kg at <-50° C, 85 kg at <-80° C

As modular systems, these laboratory lyophilizers can be equipped with various options. Additional accessories available upon request!

## + ICE CONDENSER TEMPERATURE

The ice condenser can be selected for aqueous solutions at a temperature of  $-50^{\circ}\text{C}$  or for solvent-containing or low-freezing-point products at a temperature of  $-80^{\circ}\text{C}$ .

## + CHEMISTRY HYBRID VACUUM PUMP

The chemistry hybrid pump, which has been optimized for corrosion, is a combination of a two-stage rotary vane pump and a chemically inert, two-stage membrane pump. This type of pump has been designed for creating a vacuum in chemical applications in which solvents result in heavy condensation. The pump achieves an ultimate vacuum (with no gas ballast) of  $2 \times 10^{-3}$  mbar.

## + DRYING CHAMBER

The drying chamber is positioned along with a base plate directly on top of the ice condenser and serves as a vacuum chamber that accommodates the rack insert. Depending on the needs of the application, the chamber is available either in acrylic glass or stainless steel. Customers may choose between the normal acrylic lid and a lid with vacuum ports for connecting additional flasks.

## + HEATED SHELVES

Optional heated shelves for accelerating processes ensure the necessary heat input for freeze drying.

## + ALUMINUM RACK INSERT

The rack insert allows users to place products on multiple levels. You can vary the number of shelves – and thus the distance between them – to accommodate your product. In order to accelerate the drying process, the rack insert can also be upgraded to include an optional heating feature.

## + VARIABLE DISTANCE BETWEEN SHELVES

The variable shelf packet allows users to adjust shelf height. The ideal solution for products containers of varying sizes.

## + VACUUM CONTROL

A magnetic valve situated between the vacuum pump and condenser controls the previously set vacuum.

## + MECHANISM FOR SEALING VIALS

For sealing vials under a vacuum. After the drying process, the shelves can be collapsed, which seals the vials. (Only with VaCo 5 and VaCo 10)

## + VACUUM PUMP

This compact, oil-sealed rotary vane pump is designed for reliable, continuous operation, and achieves an ultimate vacuum (with no gas ballast) of  $3 \times 10^{-3}$  mbar. The pump includes an exhaust oil mist filter (EMF3) in order to prevent oil aerosols from entering the surrounding air.

## + STAINLESS STEEL DRYING RACK

Exclusively for drying materials in flasks and/or jars. The drying rack is placed on the ice condenser and can be connected to sample vessels using a 29/32 standard taper valve.

## + DRYING PANS

Product drying pans are made of stainless steel. The surface is polished for easy cleaning.

## + AMPOULE ADAPTER

The ampoule adapter serves as a means of extending the vacuum valve, and can accommodate up to 16 ampoules (depending on the adapter).

## DOCUMENTATION



### DRYLOG BATCH DOCUMENTATION SOFTWARE

Windows-based software automatically reads the process data from the freeze dryers and processes these data into a graphic and numeric PDF log (direct coupling with an Ethernet interface RJ45).

## SERVICE

We offer you outstanding service. Our employees regularly take part in training sessions to make high-quality service possible.

## HOTLINE

Our technical hotline will assist you regarding operation and if you are having system- or process-related problems. If you need us, we can get to you within 24 hours.

## REPLACEMENT PARTS

Replacement part deliveries are processed immediately, such that delivery is usually made on the same day.

## CONSULTATION

We can provide you with advice regarding your project and draw on our experience to assist you. Test drying can also be carried out in our application laboratory.

### OUR SERVICES INCLUDE:

- Delivery, installation and training
- Maintenance and service
- Qualification DQ / IQ / FDS, SDS, HDS / OQ / PQ according to GMP guidelines
- Customized process development and optimization
- Sterilization and drying on a contract basis in our own application laboratory
- Calibration with DKD (German Calibration Service)-tested measuring
- Validation according to recognized guidelines





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