

Laboratory freeze drying systems Routine applications



Reliable and
versatile – LSCbasic



Process reliability and versatility

For your application

Experience, expertise and versatility for your freeze drying

Benefit from our experience as a leading manufacturer of freeze drying systems for more than 75 years. We offer you a closely graduated series of systems for product-specific freeze drying with a wide range of optimization options.

The highly diverse, modularly structured range of accessories allows the laboratory freeze drying systems to be used for a wide variety of tasks.

Assured results in daily routine use

Routine operations in particular make high demands on system technology. Along with suitable application versatility, a high level of process reliability and intuitive functionality are expected. The various base units of the Alpha and Beta series, combined with the specially developed LSCbasic system controllers, ensure compliance with the requirements for successful and reliable freeze drying day after day.

Innovative technology for outstanding results

- Compact, high-performance laboratory systems with a small footprint
- Low noise level: 54 dB(A) according to DIN 45635
- Drying chamber above the ice condenser chamber for high sublimation performance and short process times
- Ice condenser chamber with internal condenser coils, entirely made of high-grade stainless steel (type 316L)
- Modular structure for an extremely wide range of applications
- Extensible with a large range of accessories to suit your task
- Integrated hot gas function for quick defrosting
- Automatic venting valve
- LSCbasic controller with color touchscreen, intuitive operation
- Clear display of presentation of relevant process parameters
- Vacuum control for optimized process times
- Product temperature display according to sublimation pressure curve
- Data interface (LAN), e.g. for LyoLogplus documentation software

Typical applications

Our freeze dryers are suitable for a wide range of applications:

- Preserving the product characteristics of the original substances
- Preserving the original form (e.g. animal preparations, archaeological objects or flowers)
- Conditioning the material (e.g. freeze-dried fruit)
- Chemical analyses (e.g. trace element analyses of foods, sludge or soil)

Detailed application examples:

martinchrist.de/application



Make the right choice

Graduated condenser temperatures and drying capacities

Laboratory freeze drying systems are available in various sizes with a wide range of accessories.

Product designation format



Different ice condenser temperatures are available for each base model, depending on the solvents used:

| Temperature level | Temperature | Typical application area |
|-------------------|-------------|-----------------------------------|
| 1 | -55 °C | Aqueous products |
| 2 | -85 °C | Products with low freezing points |
| 3 | -105 °C | Products containing solvents |

The various models have different maximum ice capacities:

| Maximum ice capacity | System type |
|----------------------|--|
| 2.5 kg | Alpha 1-2 LSCbasic |
| 4 kg | Alpha 1-4 LSCbasic Alpha 2-4 LSCbasic |
| 4 kg | Alpha 3-4 LSCbasic |
| 8 kg | Beta 1-8 LSCbasic Beta 2-8 LSCbasic |

Contact us

Tell us your task requirements – we will be pleased to advise you.

Our product line

for daily routine applications



Alpha 1-2 LSCbasic



Alpha 1-4 LSCbasic
Alpha 2-4 LSCbasic



Alpha 3-4 LSCbasic



Beta 1-8 LSCbasic
Beta 2-8 LSCbasic

Versatile for small product amounts

Alpha 1-2 LSCbasic

The Alpha 1-2 LSCbasic with high quality equipment is a universal tool for your successful processes, day after day.

Innovative technology for outstanding results

- Small, high-performance benchtop unit
- Drying chamber above the ice condenser chamber for high sublimation performance and short process times
- Ice condenser chamber with internal condenser coils, entirely made of high-grade stainless steel
- Display of ice condenser temperature and vacuum, indirect product temperature determination based on vapor pressure curve
- Extensive range of accessories, including shelves, drying manifolds, and sealing devices for vials
- Integrated hot gas function for quick defrosting

Alpha 1-2 LSCbasic -55 °C

| No. | Manifold ¹⁾ | | Shelves | | |
|-----|------------------------|--------|---------|---------------------|---------------------|
| | Number of vessels | Number | Ø | A _{tot} | Spacing |
| 1 | 8 | - | - | - | - |
| 2 | - | 3 | 200 mm | 0.09 m ² | 85 mm |
| 3 | 8 | 3 | 200 mm | 0.09 m ² | 85 mm |
| 4 | - | 2 | 200 mm | 0.06 m ² | 70 mm ²⁾ |

¹⁾ For round-bottom flasks, wide-mouth filter bottles or ampoule distributors

²⁾ Sealing device



1



2



3



4

New EntryPackage at a special price

Your start into efficient lyophilisation with our EntryPackage

Universal system package for successful processes every day. The complete, ready-to-use package consists of the Alpha 1-2 LSCbasic base system with 2.5 kg ice condenser capacity, a vacuum pump, and accessories for drying in flasks.

The EntryPackage contains:



All-in-one package.



Attractive bundle price.



Short delivery time.



New
User Interface
Product video

Example configurations

Wide range means numerous possibilities

Alpha 1-4 LSCbasic Alpha 2-4 LSCbasic

4 kg  -55 °C
-85 °C

| No. | Manifold ¹⁾ | | Shelves | | |
|-----|------------------------|--------|---------|---------------------|---------------------|
| | Number of vessels | Number | ∅ | A _{tot} | Spacing |
| 1 | 8 | - | - | - | - |
| 2 | 12 | 3 | 265 mm | 0.15 m ² | 79 mm |
| 3 | 2 x 12 | 3 | 265 mm | 0.15 m ² | 79 mm |
| 4 | - | 5 | 360 mm | 0.5 m ² | 70 mm |
| 5 | - | 2 | 250 mm | 0.1 m ² | 45 mm ²⁾ |

¹⁾ For round-bottom flasks, wide-mouth filter bottles or ampoule distributors

²⁾ Sealing device

Typical applications

- Soil samples
- Plant material
- Food for harmful substance analysis
- Natural substances



Beta 1-8 LSCbasic Beta 2-8 LSCbasic

8 kg  -55 °C
-85 °C

| No. | Manifold ¹⁾ | | Shelves | | |
|-----|------------------------|--------|---------|---------------------|---------------------|
| | Number of vessels | Number | ∅ | A _{tot} | Spacing |
| 6 | 8 | - | - | - | - |
| 7 | - | 5 | 265 mm | 0.25 m ² | 79 mm |
| 8 | 2 x 12 | 3 | 265 mm | 0.15 m ² | 79 mm |
| 9 | - | 5 | 360 mm | 0.5 m ² | 70 mm |
| 10 | - | 4 | 250 mm | 0.2 m ² | 50 mm ²⁾ |

¹⁾ For round-bottom flasks, wide-mouth filter bottles or ampoule distributors

²⁾ Sealing device

Typical applications

- Excrement
- Plant material for DNA analysis
- Colloids from cider or wine
- Content analytics



Intuitive touchscreen user interface

LSCbasic system controller



Cutting-edge technologies are brought together in the LSCbasic system controller to make an easy-to-use, intuitive user interface. Automatic process sequences ensure reproducible results.

- 5.7" color touchscreen with clear layout
- Manual or automatic process continuation
- Interactive graphical display of the system schematic
- Extensive messages (cause, action, effect)
- Maintenance intervals for vacuum pump and system
- Multiple language options
- Selectable units for temperature (°C, °F) and pressure (mbar, hPa, Torr)
- Password protection available
- Process data acquisition and optional data exchange over USB or LAN

LSCbasic
system controller:
convenient and intuitive

Quick and easy front loading

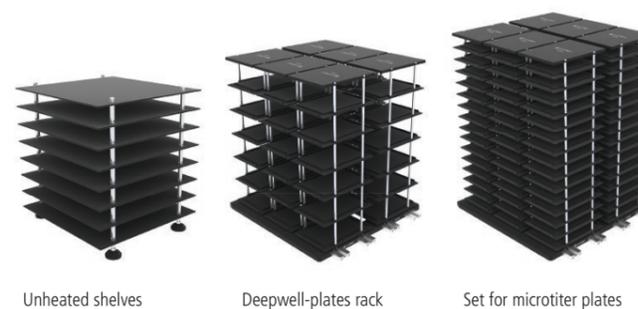
LyoCube acrylic glass

Front loader for extremely simple operation with large capacity

LyoCube is the ideal solution when fast and convenient loading is a primary consideration or bulky products have to be freeze dried.

- It is compatible with every Martin Christ laboratory freeze drying system
- Rectangular shelves with a hinged door for convenient operation
- Standard configuration with five shelves (0.38 m²)
- Optimal solutions when using MTP or deep well plates
- Extensive accessories including thermoblocks, product trays and product screens

Accessories that are easy to change



Unheated shelves

Deepwell-plates rack

Set for microtiter plates



View the LyoCube
acrylic glass
product video



Specialized system for organic solvents

Alpha 3-4 LSCbasic



Freeze drying is not only used for water-based materials. Typical examples include HPLC fractions with organic or inorganic solvents, such as acetonitrile, TFA and other alcohols, or other products with t-butanol, DMSO, etc.

The Alpha 3-4 LSCbasic is available in two defined packages, fully aligned to the requirements of freeze drying with solvents.

Increased safety considerations require special system configurations:

- Safe: No sources of ignition, such as commonly used Pirani vacuum sensors
- Durable: High-quality materials for excellent chemical resistance, such as 316L stainless steel for the condenser, manifolds and drying chamber, and solvent-resistant seals
- High performance Internal condenser; most solvents are frozen or liquefied in the chamber at $-105\text{ }^{\circ}\text{C}$
- Solvent-resistant ATEX certified vacuum pump

The Alpha 3-4 LSCbasic solvent package is equipped with the user-friendly LSCbasic system controller for safe and successful freeze drying, day after day.

Typical applications

- Preparative HPLC fractions
- Solvent removal after chromatography
- Organic dyes and pigments
- Polymers in benzol
- Organic substances in solvents

Complete and ready to use

Two system configurations

For more information about Alpha 3-4 LSCbasic, see the webpage: martinchrist.de/alpha-3-4



Solvent package for flasks:

- 1 ATEX certified oil-free vacuum pump
- 2 Stainless steel vacuum hose
- 3 Capacitive vacuum sensor
- 4 Drying manifold with 12 chemical-resistant valves for flasks
 - Vacuum control to reduce drying times by up to 40%
 - Drain valve
 - Alpha 3-4 LSCbasic freeze dryer with internal condenser, made entirely of stainless steel (316L)
 - Exclusively materials solvent-resistant



Universal solvent package – flasks and shelf:

- 1 ATEX certified oil-free vacuum pump
- 2 Stainless steel vacuum hose
- 3 Capacitive vacuum sensor
- 4 Mineral glass drying chamber
- 5 12 chemical-resistant valves for flasks
 - Vacuum control to reduce drying times by up to 40%
 - Drain valve
 - Base plate for shelves
 - Three shelves 265 mm diameter, unheated
 - Alpha 3-4 LSCbasic freeze dryer with internal condenser, made entirely of stainless steel (316L)
 - Solvent-resistant seals and connectors



Technical data

| Technical data | Alpha 1-2 LSCbasic | Alpha 1-4 LSCbasic | Alpha 2-4 LSCbasic | Beta 1-8 LSCbasic | Beta 2-8 LSCbasic | Alpha 3-4 LSCbasic |
|---|----------------------------|---|---|---|---|-----------------------|
| Ice condenser | | | | | | |
| • Max. capacity | 2.5 kg | 4 kg | 4 kg | 8 kg | 8 kg | 4 kg |
| • Temperature | approx. -55 °C | approx. -55 °C | approx. -85 °C | approx. -55 °C | approx. -85 °C | approx. -105 °C |
| • Chamber volume | approx. 3.5 l | approx. 6.5 l | approx. 6.5 l | approx. 11 l | approx. 11 l | approx. 11 l |
| Dimensions of base unit (W x H x D), mm | 315 x 345 x 470 | 390 x 415 x 540 | 390 x 415 x 540 | 780 x 415 x 540 | 780 x 415 x 540 | 780 x 415 x 540 |
| Weight | approx. 28 kg | approx. 42 kg | approx. 55 kg | approx. 63 kg | approx. 78 kg | approx. 80 kg |
| Electrical connection (other variants available upon request) | 230 V/50 Hz 230 V/60 Hz | 230 V/50 Hz 220 V/60 Hz 208 V/60 Hz | 230 V / 50 Hz |
| Noise level as per DIN 45635 | 49 | 54 | 54 | 54 | 54 | 54 |
| Defrosting | ● | ● | ● | ● | ● | ● |
| Venting valve | - | ● | ● | ● | ● | ● |
| Vacuum indication | ● | ● | ● | ● | ● | ● |
| Vacuum control | ● | ● | ● | ● | ● | ● |
| Temperature | | | | | | |
| • Ice condenser (display) | ● | ● | ● | ● | ● | ● |
| • Product based on H ₂ O sublimation curve | ● | ● | ● | ● | ● | ● |
| Communication | | | | | | |
| • LAN | ○ | ○ | ○ | ○ | ○ | ○ |
| • USB | ○ | ○ | ○ | ○ | ○ | ○ |
| • LyoLogplus | ○ | ○ | ○ | ○ | ○ | ○ |
| • LPCplus | ○ | ○ | ○ | ○ | ○ | ○ |

The data provided refers to the base unit with ambient conditions of +10 °C to +25 °C.

Subject to change without prior notice.

● Basic equipment ○ Optional – Not available

Our product range

With a unique and broad graduated range of devices and accessories, we can supply freeze drying systems and vacuum concentrators for every application. Let us show what we can do!



- 1 Freeze drying systems for industrial production with ice condenser capacity from 20 to 500 kg; custom system design including loading and unloading systems.
- 2 Pilot freeze drying systems for process development and/or optimization with ice condenser capacity from 4 to 16 kg.
- 3 Freeze drying systems for routine applications or research and development with ice condenser capacity from 2 to 24 kg.
- 4 Rotational vacuum concentrators for applications ranging from routine to evaporation concentration in the high-end range of pharmaceutical research.



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