



Alpha 1-4 / 2-4



Gamma 1-16 / 2-16



Delta 1-24 / 2-24

Laboratory Freeze Dryers

The optimal system for advanced applications:

- compact, high-performance laboratory and technical equipment requiring minimal space
- modular systems permit capacity expansion with a wide variety of accessories
- complete processing of entire freeze-drying cycle in ice condenser chamber, program controlled, if desired, from -30°C with single-stage compressors, to -50°C with double-stage compressors
- innovative, easy-to-use interface LSC with PC connection for process control and documentation
- freeze-dryer system fulfills FDA and cGMP-Guidelines, interface fulfills the current requirements according to GAMP, Lyo-software LPC-16 also meets US CFR requirements
- drying chamber is located directly above the ice condenser chamber; maximum cross-sectional area results in high sublimation performance and shortest possible process-time
- ice condenser chamber with inner condenser coil of high-quality steel allows for efficient vapour deposition
- thermal insulation of ice condenser chamber avoids power loss and eliminates build-up of water condensation
- ice condenser can be checked visually
- easily accessible ice condenser; rapid, easy defrosting and cleaning (electrical or hot-gas defrosting available); mechanical or electric defrosting drain
- chemically resistant systems for freeze drying solvents (e.g. DMSO, Acetonitrile, Tert-Butanol, Dioxane) are available
- Windows-based software LPC-16 (Lyophilization Process Control) for PC process control and documentation available with all systems
- simple alternative process documentation using Martin Christ printer or Lyolog LL-1 software
- when required, system qualification (IQ/OQ documentation) for validation purposes

System Selection

Incremental condensing performance for every application

In addition to selecting the accessories, the following criteria should be taken into account when choosing a freeze-drying system:

- required ice condenser temperature (-55°C for water-based samples, -85°C for substances with low freezing points or containing solvents)
- number of shelves, i.e. number of flasks needed for the amount of product per batch
- maximum ice condenser performance required (kg/24h) i.e. total quantity of ice produced until defrosted

Configuration tailored to your procedural needs

The adjacent illustrations show examples of the range of system configurations; you can choose the models and accessories that fit your requirements.

Do not hesitate to contact us for an individual configuration of your system. We will gladly provide assistance.

Configurations Alpha 1-4 / 2-4

- 1 freezing and drying inside ice condenser chamber (process A) on one temperature controlled shelf (ø 200 mm, total area = 0.031 m²)
- 2 freezing and drying inside ice condenser chamber (process A) on one temperature controlled shelf with stoppering device (ø 200 mm, total area = 0.031 m²)
- 3 2 drying chambers with 24 ports for flasks, wide-neck filter bottles or distributors for ampoules
- 4 manifold for 8 round bottom flasks, wide-neck filter bottles or distributors for ampoules, specially suited for the drying of solvents
- 5 5 heatable shelves (ø 200 mm, total area = 0.155 m², distance between shelves = 25 mm - can be varied by removing single shelves) additional ports for 12 round bottom flasks, wide-neck filter bottles or distributors for ampoules
- 6 10 heatable shelves (ø 200 mm, total area = 0.31 m², distance between shelves = 25 mm - can be varied by removing single shelves)
- 7 10 heatable shelves (ø 200 mm, total area = 0.31 m², distance between shelves = 25 mm - can be varied by removing single shelves) additional ports for 12 round bottom flasks, wide-neck filter bottles or distributors for ampoules
- 8 2 heatable shelves with stoppering device (ø 250 mm, total area = 0.09 m², distance between shelves = 45 mm - can be increased to 110 mm by removing one shelf) additional ports for 12 round bottom flasks, wide-neck filter bottles or distributors for ampoules
- 9 4 heatable shelves with stoppering device (ø 250 mm, total area = 0.18 m², distance between shelves = 50 mm - can be varied by removing single shelves)
- 10 5 heatable shelves (ø 375 mm, total area = 0.55 m², distance between shelves = 67 mm - made possible with special adapter plate)
- 11 1 drying chamber with additional ports for 12 round bottom flasks, wide-neck filter bottles or distributors for ampoules, additional connection to a rotation vacuum concentrator (e.g. RVC 2-25) available



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