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Example configurations

Beta 1-8 LSCplus Beta 2-8 LSCplus



No.	Drying manifold ^a	Shelves				Application
	Number of vessels	Number	Ø	A _{tot}	Spacing	Special features
1	-	1	200 mm	0.031 m ²	70 mm	Freezing and drying inside the ice condenser (one-chamber method) on a heated shelf, optionally with a fan.
2	-	1	200 mm	0.031 m ²	70 mm ^b	Freezing and drying inside the ice condenser (one-chamber method) on a heated shelf with stoppering device, optionally with a fan.
3	2 x 12	-	-	-	-	For round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for aqueous products.
4	8	-	-	-	-	For round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for solvent drying.
5	12	5	200 mm	0.155 m ²	25 mm	Heatable shelves, variable spacing by removing individual shelves, additional optional connectors for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
6	12	10	200 mm	0.31 m ²	25 mm	Heatable shelves, variable spacing by removing individual shelves, additional optional connectors for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
7	12	2	250 mm	0.09 m ²	45 mm ^b	Heatable shelves with stoppering device, shelf spacing can be increased to 110 mm by removing a shelf, additional connections for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
8	-	5	256 x 300 mm	0.38 m ²	55 mm	LyoCube with heatable shelves, variable spacing by removing individual shelves.
9	20	-	-	-	-	Drying manifold for round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for drying with solvents.

a) For round-bottom flasks, wide-neck filter bottles or ampoule distributors

b) Distance for stoppering device

Alternative configurations available upon request.



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Example configurations

Gamma 1-16 LSCplus Gamma 2-16 LSCplus



No.	Drying manifold ^a	Shelves				Application
	Number of vessels	Number	Ø	A _{tot}	Spacing	Special features
1	-	5	200 mm	0.155 m ²	25 mm	Freezing and drying inside the ice condenser (one-chamber method) on heated shelves, spacing variable by removing individual shelves, optionally with a fan.
2	-	2	250 mm	0.09 m ²	45 mm ^b	Freezing and drying inside the ice condenser (one-chamber method) on heated shelves with stoppering device, spacing can be increased to 110 mm by removing a shelf, optionally with a fan.
3	2 x 12	-	-	-	-	For round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for aqueous products.
4	8	-	-	-	-	For round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for solvent drying.
5	12	5	200 mm	0.155 m ²	25 mm	Heatable shelves, variable spacing by removing individual shelves, additional connectors for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
6	-	10	200 mm	0.31 m ²	25 mm	Heatable shelves, variable spacing by removing individual shelves.
7	12	2	250 mm	0.09 m ²	45 mm ^b	Heatable shelves with stoppering device, shelf spacing can be increased to 110 mm by removing a shelf, additional connections for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
8	-	4	250 mm	0.18 m ²	50 mm ^b	Heatable shelves with stoppering device, variable spacing up to 290 mm by removing individual shelves.
9	-	8	375 mm	0.88 m ²	48 mm	Heated shelves, larger spacing available upon request, optional hoist for drying chamber available.

a) For round-bottom flasks, wide-neck filter bottles or ampoule distributors

b) Distance for stoppering device

Alternative configurations available upon request.



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Example configurations

Delta 1-24 LSCplus Delta 2-24 LSCplus



No.	Drying manifold ^a	Shelves				Application
	Number of vessels	Number	Ø	A _{tot}	Spacing	Special features
1	-	10	200 mm	0.31 m ²	25 mm	Freezing and drying inside the ice condenser (one-chamber method) on heated shelves, spacing variable by removing individual shelves, optionally with a fan.
2	-	4	250 mm	0.18 m ²	45 mm ^b	Freezing and drying inside the ice condenser (one-chamber method) on heated shelves with stoppering device, spacing can be increased to 110 mm by removing a shelf, optionally with a fan.
3	2 x 12	-	-	-	-	For round-bottom flasks, wide-neck filter bottles or ampoule distributors; specifically suitable for aqueous products.
4	12	10	200 mm	0.31 m ²	25 mm	Heatable shelves, variable spacing by removing individual shelves, additional optional connectors for round-bottom flasks, wide-neck filter bottles or ampoule distributors.
5	-	4	250 mm	0.18 m ²	50 mm ^b	Heatable shelves with stoppering device, variable spacing up to 290 mm by removing individual shelves.
6	-	8	375 mm	0.88 m ²	48 mm	Heated shelves, larger spacing available upon request, optional hoist for drying chamber available.

a) For round-bottom flasks, wide-neck filter bottles or ampoule distributors

b) Distance for stoppering device

Alternative configurations available upon request.



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LyoCube

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 freeze drying system with LSCplus control
- Front-loader with rectangular shelves and transparent chamber door for easy handling
- With WST Wireless Shelf Technology – no cables between shelves and the base unit
- One temperature sensor or LyoRx sensor per shelf for optimal process management
- Shelves easily removed for tall containers
- Standard configuration with five shelves (0.38 m²)
- Maximum eight shelves for optimal utilisation with MTP or deep-well plates
- Solvent-resistant version with stainless steel door (option)
- Also available with six connections for flask drying
- Extensive accessories including thermoblocks, product trays and product screens



Possible number of shelves

Dimensions (W x D): 256 x 300 mm

Usable shelf area	Total shelf area A_{tot}	Shelf spacing
1 shelf	0.08 m ²	348.0 mm
2 shelves	0.15 m ²	165.0 mm
3 shelves	0.23 m ²	105.4 mm
4 shelves	0.31 m ²	73.5 mm
5 shelves	0.38 m ²	55.2 mm
6 shelves	0.46 m ²	43.0 mm
7 shelves	0.54 m ²	34.2 mm
8 shelves	0.61 m ²	27.7 mm

Technical specifications

	Alpha 1-4	Alpha 2-4	Beta 1-8	Beta 2-8
Ice condenser				
– Max. capacity	4 kg	4 kg	8 kg	8 kg
– Max. performance	4 kg/24 h	4 kg/24 h	6 kg/24 h	6 kg/24 h
– Temperature	approx. –55 °C	approx. –85 °C	approx. –55 °C	approx. –85 °C
– Chamber volume	approx. 6.5 l	approx. 6.5 l	approx. 11 l	approx. 11 l
Shelf temperature or product temperature during freezing in the ice condenser with a fan	approx. –25 °C	approx. –35 °C	approx. –25 °C	approx. –35 °C
Refrigeration system	0.51 kW	2 x 0.51 kW	0.51 kW	2 x 0.51 kW
Dimensions of basic unit (W x H x D)	390 x 415 x 555 mm	390 x 415 x 555 mm	780 x 415 x 540 mm	780 x 415 x 540 mm
Weight	approx. 48 kg	approx. 60 kg	approx. 63 kg	approx. 78 kg
Power supply (other voltages available upon request)	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz
Communication interface	Ethernet	Ethernet	Ethernet	Ethernet
Refrigerant	CFC-free	CFC-free	CFC-free	CFC-free
Noise level as per DIN 45635	54 dB(A)	54 dB(A)	54 dB(A)	54 dB(A)
Defrosting function	Hot gas	Hot gas	Hot gas	Hot gas
Vacuum measurement	●	●	●	●
Vacuum control	●	●	●	●
Temperature				
– Ice condenser (measurement)	●	●	●	●
– Shelf (measurement and control)	●	●	●	●
– Product (measurement for max. 10 sensors)	●	●	●	●
End point determination				
– Product temperature measurement	●	●	●	●
– Pressure increase test	○	○	○	○
– Capacitive pressure measurement	○	○	○	○
Programmer module	○	○	○	○
USB	○	○	○	○
LyoControl (freezing point determination, measurement of product resistance)	○	○	○	○
LyoLogplus process documentation software	○	○	○	○
LPCplus process control and documentation software	○	○	○	○

● = standard ○ = optional

The specifications apply to the basic unit and ambient temperature range of +10 °C to +25 °C.
Subject to change without prior notice.

Technical specifications

	Gamma 1-16	Gamma 2-16	Delta 1-24	Delta 2-24
Ice condenser				
– Max. capacity	16 kg	16 kg	24 kg	24 kg
– Max. performance	12 kg/24 h	12 kg/24 h	18 kg/24 h	18 kg/24 h
– Temperature	approx. –55 °C	approx. –85 °C	approx. –55 °C	approx. –85 °C
– Chamber volume	approx. 30 l	approx. 30 l	approx. 45 l	approx. 45 l
Shelf temperature or product temperature during freezing in the ice condenser with a fan	approx. –40 °C	approx. –50 °C	approx. –40 °C	approx. –50 °C
Refrigeration system	0.6 kW	2 x 0.6 kW	0.88 kW	2 x 0.88 kW
Dimensions of basic unit (W x H x D)	860 x 485 x 650 mm	860 x 485 x 650 mm	860 x 1050 x 650 mm	860 x 1050 x 650 mm
Weight	approx. 135 kg	approx. 160 kg	approx. 215 kg	approx. 250 kg
Power supply (other voltages available upon request)	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz	220 V / 50 Hz 230 V / 60 Hz 208 V / 60 Hz
Communication interface	Ethernet	Ethernet	Ethernet	Ethernet
Refrigerant	CFC-free	CFC-free	CFC-free	CFC-free
Noise level as per DIN 45635	54 dB(A)	54 dB(A)	54 dB(A)	54 dB(A)
Defrosting function	Hot gas	Hot gas	Hot gas	Hot gas
Vacuum measurement	●	●	●	●
Vacuum control	●	●	●	●
Temperature				
– Ice condenser (measurement)	●	●	●	●
– Shelf (measurement and control)	●	●	●	●
– Product (measurement for max. 10 sensors)	●	●	●	●
End point determination				
– Product temperature measurement	●	●	●	●
– Pressure increase test	○	○	○	○
– Capacitive pressure measurement	○	○	○	○
Programmer module	○	○	○	○
USB	○	○	○	○
LyoControl (freezing point determination, measurement of product resistance)	○	○	○	○
LyoLogplus process documentation software	○	○	○	○
LPCplus process control and documentation software	○	○	○	○

● = standard ○ = optional

The specifications apply to the basic unit and ambient temperature range of +10 °C to +25 °C.
Subject to change without prior notice.

Our Product Spectrum

With a unique and broad graduated range of equipment and accessories, we can supply freeze drying systems and vacuum concentrators for every application. Let us show you 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 system.
- 2 Pilot freeze drying systems for process development or process optimisation with ice condenser capacity from 4 to 16 kg.
- 3 Freeze drying systems for routine applications or R&D with ice condenser capacity from 2 to 24 kg.
- 4 Rotational vacuum concentrators for applications extending from routine to evaporation concentration in the high-end range of pharmaceutical research.



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