## LYODRY PRODUCTION FREEZE DRYER



UP TO 42 TEMPERATURE CONTROLLED SHELVES ± 60°C, DATA LOGGING/ANALYSIS, TOUCH SCREEN

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LyoDry Freeze Dryers provide an extended choice of process and control options for reliable, reproducible freeze drying of a wide range of sample types.

The <u>LyoDry Production Freeze Dryer</u> is the largest in the LyoDry range, for production scale, controlled freeze drying of bulk samples in a single cycle. The LyoDry Production Freeze Dryer is equipped with a rectangular drying chamber, containing up to 42 temperature controlled shelves, controllable ± 60°C.

Using the latest technology in vacuum, refrigeration and control, the LyoDry Production Freeze Dryer provides unrivalled product protection and operator interfacing. A full system mimic on the touch screen display provides a user friendly interface, giving a clear indication of system status. It is a 'through-the-wall' configuration with a separate plant room, and therefore ideally suited to freeze drying pharmaceutical product in a clean room environment.



Large shelf area (up to 16.8m²), high capacity ice condenser	Up to 42 temperature controlled shelves (including 2 radiant shelves) ±60°C
Fully automated, touch screen control, automatic end point determination	Data logging, real time and historical analysis, remote view (option), audit trail
Up to 200 reproducible process profiles (recipes)	Password protected user accounts
Comprehensive alarms and security configuration, password protected user accounts	Ideal for clean room with external plant room
Manufactured in 316L stainless steel	UK designed, manufactured and maintained











## LYODRY PRODUCTION FREEZE DRYER

## MECHATECH SYSTEMS TECHNICAL VACUUM EXCELLENCE **SINCE 2008**

## **TECHNICAL SPECIFICATION**

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thickness	SHELF	dimensions (w x d)	600 mm x 680mm
material   316L stainless steel   flatness / m		surface area (each)	0.4m <sup>2</sup>
flatness / m		thickness	11.55mm ± 0.15mm
temp. variation across shelf (with static load)  cooling rate / min heating rate / min temperature control (stable state)  temperature range  condenser minimum operating temperature (no load, under vacuum) ice capacity: small condenser large condenser large condenser large condenser large condenser  condensing rate  condensing rate  power  condensing rate  power  frequency fused supply  fused supply  cooling  gas type  cooling power  vacuution time:  gas type  cooling power  vacuution time:  atmopshere to 20 Torr 20 Torr to 0.5 Torr  valued supplov. 4500kg  WEIGHT  (largest model) Approx. 4500kg  WEIGHT  (largest model) Approx. 4500kg  WIGHER  (largest model) Approx. 4500kg  WIGHER  (largest model) Approx. 4500kg  WIGHER  (largest model) Approx. 4500kg		material	316L stainless steel
Cooling rate / min		flatness / m	± 1.5mm
heating rate / min		temp. variation across shelf (with static load)	± 1.2°C
temperature control (stable state)		cooling rate / min	0.5°C / min
temperature range  CONDENSER  material  Condenser minimum operating temperature (no load, under vacuum)  ice capacity:  mall condenser  large condenser  condensing rate  Condensing rate  Condensing rate  condensing rate  condensing rate  power  phase  power  frequency  fused supply  fused supply  Cooling  gas type  cooling power  cooling cooling cooling  cooling power  cooling power  cooling power  cooling cooling cooling  cooling power  cooling power  cooling power  cooling cooling cooling cooling  cooling power  cooling power  cooling power  cooling power  cooling power  cooling power  cooling cooling cooling cooling cooling  cooling power  cooling power  cooling power  cooling cool		heating rate / min	2ºC/min
CONDENSER material 316L stainless steel Condenser minimum operating temperature (no load, under vacuum) \$\leq -80\circ\$C  ice capacity: small condenser   15 large condenser   90  condensing rate		temperature control (stable state)	± 1°C
Condenser minimum operating temperature (no load, under vacuum)  ice capacity: small condenser large condenser  condensing rate  A 1/hr  POWER  Supply voltage  phase  Supply voltage  phase  Supply voltage  phase  Supply voltage  phase  Supply voltage  Frequency  Frequency  Frequency  Supply Supply  S		temperature range	-60°C to 60°C
ice capacity: small condenser   15   16   16   17   18   19   19   19   19   19   19   19	CONDENSER	material	316L stainless steel
large condenser 90 condensing rate 4 l/hr POWER supply voltage 415V phase 3ph power 60kW frequency 50Hz fused supply 70ling 90 90 90 90ling 8emi-hermetic compressor - CFC free water cooled 9gas type 8507 cooling power 15 HP (11KW) VACUUM ultimate vacuum 90.037 Torr pressure control (stable state) 10.075 Torr evacuation time: atmopshere to 20 Torr 90 90 90 90 90 90 90 90 90 90 90 90 90	Condenser minimum operating temperature (no load, under vacuum)		≤ -80°C
condensing rate 4 I/hr  POWER supply voltage 415V phase 3ph power -60kW frequency 50Hz fused supply 125A  REFRIGERATION cooling Semi-hermetic compressor - CFC free -water cooled gas type 8507 cooling power 15 HP (11KW)  VACUUM ultimate vacuum 0.037 Torr pressure control (stable state) 10.075 Torr evacuation time: atmopshere to 20 Torr 20 Torr to 0.5 Torr 5 minutes WEIGHT (largest model) Approx. 4500kg	large	ice capacity: small condenser	15
POWER supply voltage 415V phase 3ph power -60kW frequency 50Hz fused supply 125A  REFRIGERATION cooling Semi-hermetic compressor - CFC free-water cooled gas type R507 cooling power 15 HP (11KW)  VACUUM ultimate vacuum 0.037 Torr pressure control (stable state) ± 0.075 Torr evacuation time: atmopshere to 20 Torr < 5 minutes 20 Torr to 0.5 Torr (largest model) Approx. 4500kg		large condenser	90
phase 3ph power -60kW frequency 50Hz fused supply 125A  REFRIGERATION cooling Semi-hermetic compressor - CFC free-water cooled gas type R507 cooling power 15 HP (11KW) VACUUM ultimate vacuum 0.037 Torr pressure control (stable state) ± 0.075 Torr evacuation time: atmopshere to 20 Torr 20 Torr < 5 minutes 20 Torr to 0.5 Torr  WEIGHT (largest model) Approx. 4500kg		condensing rate	4 l/hr
power60kW frequency60kW fused supply	POWER	supply voltage	415V
frequency fused supply  REFRIGERATION cooling gas type cooling power VACUUM ultimate vacuum pressure control (stable state) evacuation time: atmopshere to 20 Torr 20 Torr to 0.5 Torr  WEIGHT  Semi-hermetic compressor - CFC free-water compressor - CFC fre		phase	3ph
fused supply  REFRIGERATION cooling  gas type  cooling power  Cooling power  VACUUM  Ultimate vacuum  pressure control (stable state)  evacuation time: atmopshere to 20 Torr  20 Torr to 0.5 Torr  WEIGHT  Semi-hermetic compressor - CFC free - water cooled  R507  COOL  Semi-hermetic compressor - CFC free - water cooled  R507  CFC free - water cooled  Semi-hermetic compressor - CFC free - water cooled  R507  CFC free - water cooled  Semi-hermetic compressor - CFC free - water cooled  R507  CFC free - water cooled  Semi-hermetic compressor - CFC free - water cooled  R507		power	~60kW
REFRIGERATION cooling Semi-hermetic compressor - CFC free - water cooled gas type R507  cooling power 15 HP (11KW)  VACUUM ultimate vacuum 0.037 Torr pressure control (stable state) ± 0.075 Torr evacuation time: atmopshere to 20 Torr 20 Torr to 0.5 Torr 20 Torr to 0.5 Torr (largest model) Approx. 4500kg		frequency	50Hz
yas type  cooling power  VACUUM  ultimate vacuum  pressure control (stable state)  evacuation time: atmopshere to 20 Torr 20 Torr to 0.5 Torr  WEIGHT  water cooled  R507  R507  15 HP (11KW)  0.037 Torr  0.037 Torr  15 HP (11KW)  0.037 Torr  15 HP (11KW)  15 HP (11KW)  15 HP (11KW)  16 HT (10 HT)  (largest model) Approx. 4500kg		fused supply	125A
gas type  cooling power  VACUUM  ultimate vacuum  pressure control (stable state)  evacuation time: atmopshere to 20 Torr  20 Torr to 0.5 Torr  WEIGHT  R507  R507  R507  0.037 Torr  (Jargest model) Approx. 4500kg	REFRIGERATION	cooling	Semi-hermetic compressor - CFC free -
cooling power         15 HP (11KW)           VACUUM         ultimate vacuum         0.037 Torr           pressure control (stable state)         ± 0.075 Torr           evacuation time: atmopshere to 20 Torr         < 5 minutes			water cooled
VACUUM ultimate vacuum 0.037 Torr pressure control (stable state) ± 0.075 Torr evacuation time: atmopshere to 20 Torr < 5 minutes 20 Torr to 0.5 Torr  WEIGHT (largest model) Approx. 4500kg		gas type	R507
pressure control (stable state) ± 0.075 Torr evacuation time: atmopshere to 20 Torr < 5 minutes 20 Torr to 0.5 Torr  WEIGHT (largest model) Approx. 4500kg		cooling power	15 HP (11KW)
evacuation time: atmopshere to 20 Torr	VACUUM	ultimate vacuum	0.037 Torr
WEIGHT < 20 Torr to 0.5 Torr < 5 minutes (largest model) Approx. 4500kg		pressure control (stable state)	± 0.075 Torr
WEIGHT (largest model) Approx. 4500kg		evacuation time: atmopshere to 20 Torr	< 5 minutes
		20 Torr to 0.5 Torr	< 5 minutes
NOISE < 50db	WEIGHT		(largest model) Approx. 4500kg
	NOISE		< 50db

MechaTech Systems provide installation, commissioning and end user training for the entire range of LyoDry freeze dryers. All freeze dryers are fully assembled and tested prior to shipment. A comprehensive Factory Acceptance Testing programme is submitted to the client for approval. Full design, installation and operational qualification support can be undertaken in the presence of the client.

LyoDry Freeze Dryers are UK designed, manufactured and supported. Quality assured.







