

LYODRY FREEZE DRYERS

Benchtop, Pilot and Production Scale
UK Designed, Manufactured and Supported
Quality Assured



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www.mechatechsystems.co.uk/freeze-dryers
www.lyodry-freeze-dryers.com

LYODRY FREEZE DRYERS

LyoDry Freeze Dryers include laboratory, pilot and production scale freeze dryers, suitable for a wide variety of freeze drying applications, including research and development, small and larger scale production of pharmaceutical, food and beverage, floral and archaeological conservation products.

LyoDry Freeze Dryers are UK designed, manufactured and supported by MechaTech Systems Ltd, near Bristol, UK. Our customer base includes R&D start-ups, blue chip pharma, government and private research institutes and universities both in the UK and overseas.

We receive excellent feedback about our products, services and customer service. LyoDry Freeze Dryers are high end, competitively priced and quality assured. Installation, commissioning, IQ/OQ, service contracts and extended warranties are available if required.

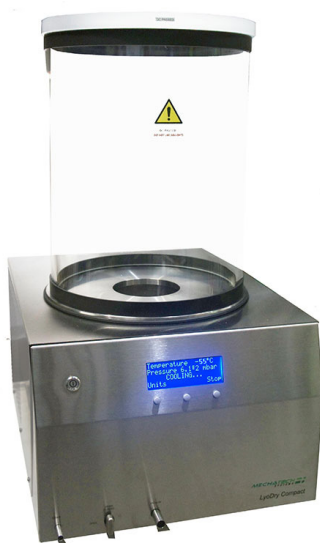
LyoDry Freeze Dryers conform to the latest environmental standards, manufactured by F-Gas certified engineers using CFC free refrigeration gas. LyoDry Freeze Dryers are designed to have fast cool down times, helping to minimise energy consumption and maximise life expectancy.

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LYODRY COMPACT BENCHTOP FREEZE DRYER

5Kg ice condenser, -55°C or -85°C condenser temperatures,
choice of accessories for bulk and flask drying



LYODRY COMPACT BENCHTOP FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**SIMPLE LCD DISPLAY, HOT GAS DEFROST, SS CABINET,
-55°C OR -85°C CONDENSER, 5KG ICE CAPACITY**

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The latest generation [LyoDry Compact](#) benchtop freeze dryer, with 5Kg maximum ice capacity is available with a condenser temperature of either -55°C (part number LSBC55) or -85°C (part number LSBC85). Features also include hot gas defrost for faster defrosting and additional display options.

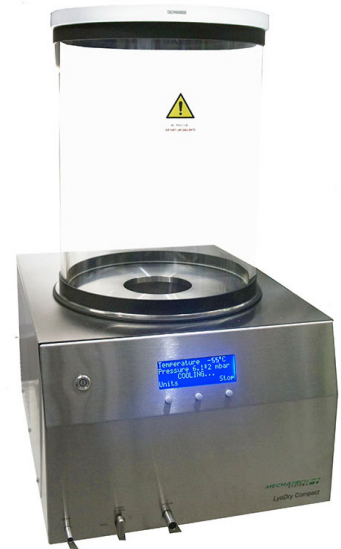
Designed to work with a wide variety of drying accessories to accommodate bulk materials, flasks, vials and ampules, this robust design includes a smooth wall, stainless steel ice condenser with a front mounted bottom drain.

The LyoDry Compact features a clear, bright LCD display, visible even from a distance. User friendly commands allow the operator to view vacuum units in millibar, Torr or pascal and temperature in Celsius or Fahrenheit. System status is obvious at a glance. The vacuum pump can be controlled on-screen, and the user is prompted to do this when the condenser reaches temperature.

The LyoDry Compact was originally designed as a direct replacement for the Edwards Modulyo® benchtop freeze dryer. Therefore many standard Modulyo freeze dryer accessories, (e.g. acrylic chamber, tray drying accessory, etc) are directly interchangeable, offering significant cost savings if only the condenser needs replacing.

The LyoDry Compact offers a superior, keenly priced, freeze drying solution, used and endorsed by universities and research laboratories in the UK and overseas.

All LyoDry Freeze Dryers are UK designed, manufactured and supported.



Compact benchtop footprint, -55°C or -85°C smooth wall, stainless steel, 5Kg capacity ice condenser	Available with a wide choice of drying chambers and accessories (and compatible with most Modulyo accessories)
Large, alphanumeric display of vacuum and temperature units with backlit, matrix LCD display	User changeable vacuum and temperature units, user prompted vacuum pump control directly from display
System status - cooling / ready; easy to follow, user friendly commands	System start-up bar graph clearly indicates time remaining until 'Ready'
Automatic hot gas defrost; CFC free	Clean, laboratory-friendly, polished stainless steel cabinet
UK designed, manufactured and supported	12 month warranty; extendable to 24 months with a Service Contract option

LYODRY COMPACT BENCHTOP FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Part number and model	LSBC55 LyoDry Compact	LSBC85 LyoDry Compact
Maximum condenser chamber volume	8.5 litres	8.5 litres
Ice removal capacity (in 12 hours)	1.2kg (2.6 lbs)	1.2kg (2.6 lbs)
Ice removal capacity (in 24 hours)	2.3kg (5.1 lbs)	2.3kg (5.1 lbs)
Maximum ice capacity	5kg (11 lbs)	5kg (11 lbs)
Operating temperature (based on tests in well vented room at 20°C ambient; condenser under vacuum with no load)	-55 °C	-85 °C
Temperature display range	Ambient to -60 °C	Ambient to -90 °C
Pressure display range	0.01 mbar to 1000 mbar	0.01 mbar to 1000 mbar
Ultimate Pressure	<5*10 ⁻² mbar	<5*10 ⁻² mbar
Refrigeration compressor type	2/3 hp hermetic unit, CFC free	1/2 / 1/3 hp hermetic unit, CFC free
Dimensions (H x W x D)	332 x 455 x 600 mm	332 x 555 x 685 mm
Weight	55kg (121 lbs)	77kg (170 lbs)
Power requirements	LSBC55-230: 230VAC/50 Hz, 1.9 kW	LSBC85-230: 230VAC/50 Hz, 2.3 kW
	LSBC55-115: 115VAC/60 Hz	LSBC85-115: 115VAC/60 Hz



Add a drying accessory, such as the LSAD6 chamber, vacuum pump and optional, purpose-built SS trolley for a complete, low-cost, laboratory freeze drying solution

LYODRY COMPACT ACCESSORIES and SPARES

Part number	Description
LSDCS	Acrylic bell jar, 225mm x 212mm OD with L-gasket
LSDC	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets
LSAD6	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets with 6-product tray drying rack assembly, SS
LSDCV	Acrylic drying chamber with 8-port valve lid assembly with neoprene valves
LSAD6H	Heated tray drying accessory comprising: acrylic drying chamber 350mm diameter x 435mm, lid and 2 x L-gaskets, with 6-product tray rack assembly, heater mats and temperature controller
LSPM24	24-Port pipe manifold with removable neoprene valves, for flask drying
LSCT	Purpose built SS trolley with castors and brakes, with bottom shelf to accommodate vacuum pump
CRVPRO8	Welch vacuum pump 230V, 1ph, 50Hz with mainslead, exhaust filter and vacuum pump oil

View the full range of LYODRY / MODULYO freeze dryer accessories and spares [ONLINE](#), or contact the sales team for further information

LYODRY BENCHTOP PRO FREEZE DRYER

5Kg ice condenser, -55°C or -85°C condenser temperatures, data logging and analysis, pressure control, colour touch screen, ethernet comms, USB, choice of accessories for bulk, flask or ampoule drying



LYODRY BENCHTOP PRO FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

DATA LOGGING, TRENDS, PRESSURE CONTROL,
TOUCH SCREEN, -55°C OR -85°C CONDENSER

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[LyoDry Benchtop Pro Freeze Dryer](#) features all of the advantages of our entry level model, the [LyoDry Compact Benchtop Freeze Dryer](#), but is designed for more closely controlled freeze drying applications.

LyoDry Benchtop Pro has the added advantages of touch screen control and enhanced functionality including data logging, pressure control, real time and historical temperature and pressure trends, ethernet comms and USB.

A modular freeze dryer, it can be used with a choice of drying chambers and accessories for bulk or flask drying.

If used with the LSAD6H Heated Tray Accessory, then complex pressure/temperature profiles can be controlled accurately and reproducibly without operator intervention.

LyoDry Freeze Dryers are UK designed, manufactured and supported by MechaTech Systems Ltd, used and endorsed by universities, government research institutes, pharma and food manufacturers, in the UK and globally.

The LyoDry Benchtop Pro Freeze Dryer incorporates all features of the standard LyoDry Compact Benchtop Freeze Dryer...

Condenser temperature -55°C or -85°C	CFC free condenser, ice capacity 5Kg
Modular - choice of drying chambers/manifold to suit your freeze drying application	Clean, laboratory-friendly, polished stainless steel cabinet
Hot gas defrost	Direct replacement for Modulyo freeze dryer
UK designed, manufactured and supported	12 month warranty; extendable to 24 months with a Service Contract option



...occupying the same footprint, with enhanced functionality:

Wide screen Touch Operator Interface with easy icon navigation	Real time and historical trending of temperature and pressure values
Data-logging	Pressure control
Password protection	Alarms history
Ethernet comms and USB	Multiple profile creation if used with Heated Tray Accessory

LYODRY BENCHTOP PRO FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Part number and model	LSB55P LyoDry Benchtop Pro	LSB85P LyoDry Benchtop Pro
Maximum condenser chamber volume	8.5 litres	8.5 litres
Ice removal capacity (in 12 hours)	1.2kg (2.6 lbs)	1.2kg (2.6 lbs)
Ice removal capacity (in 24 hours)	2.3kg (5.1 lbs)	2.3kg (5.1 lbs)
Maximum ice capacity	5kg (11 lbs)	5kg (11 lbs)
Operating temperature (based on tests in well vented room at 20°C ambient; condenser under vacuum with no load)	-55 °C	-85 °C
Temperature display range	Ambient to -60 °C	Ambient to -90 °C
Pressure display range	0.01 mbar to 1000 mbar	0.01 mbar to 1000 mbar
Pressure control range	0.05 - 1 mbar	0.05 - 1 mbar
Ultimate pressure	<5*10 ⁻² mbar	<5*10 ⁻² mbar
Data transfer port	USB	USB
Refrigeration compressor type	2/3 hp hermetic unit - CFC free	1/2 / 1/3 hp hermetic unit CFC free
Dimensions (H x W x D)	332 x 455 x 600 mm	332 x 555 x 685 mm
Weight	55kg (121 lbs)	77kg (170 lbs)
Power requirements	230VAC/50 Hz, 1.9 kW	230VAC/50 Hz, 2.3 kW
	115VAC/60 Hz	115VAC/60 Hz



Add a drying accessory, such as the Acrylic Chamber and Tray Accessory, vacuum pump and optional, purpose-built SS trolley for a complete, freeze drying solution.

LYODRY BENCHTOP PRO ACCESSORIES and SPARES

Part number	Description
LSDCS	Acrylic bell jar, 225mm x 212mm OD with L-gasket
LSDC	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets
LSAD6	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets with 6-product tray drying rack assembly, SS
LSDCV	Acrylic drying chamber with 8-port valve lid assembly with neoprene valves
LSAD6H	Heated tray drying accessory comprising: acrylic drying chamber 350mm diameter x 435mm, lid and 2 x L-gaskets, with 6-product tray rack assembly, heater mats and temperature controller
LSPM24	24-Port pipe manifold with removable neoprene valves, for flask drying
LSCT	Purpose built SS trolley with castors and brakes, with bottom shelf to accommodate vacuum pump
CRVPRO8	Welch vacuum pump 230V, 1ph, 50Hz with mainslead, exhaust filter and vacuum pump oil

View the full range of LYODRY / MODULYO freeze dryer accessories and spares [ONLINE](#), or contact the sales team for further information

LYODRY MIDI FREEZE DRYER

18Kg ice condenser, -55°C or -85°C condenser,
choice of accessories for bulk or flask drying



LYODRY MIDI FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**SIMPLE LCD DISPLAY, HOT GAS DEFROST, SS CABINET,
-55°C OR -85°C CONDENSER, 18KG ICE CAPACITY**

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The [LyoDry Midi](#) freeze dryer condenser is the next size up from a LyoDry benchtop freeze dryer. It is a versatile 18Kg capacity ice condenser, with condenser temperatures of either -55°C (part no: LSMC55) or -85°C (part no: LSMC85) and a wide choice of chamber/drying accessory options.

The LyoDry Midi was originally designed as a direct replacement for the Edwards SuperModulyo® freeze dryer, but today incorporates the latest freeze drying technologies. Many standard Edwards drying accessories (e.g. acrylic chamber, tray drying accessory, etc) are directly interchangeable, offering significant cost savings if only the condenser needs replacing. Add a 10-shelf chamber (unheated or heated) for an economical pilot scale or small production scale freeze dryer.



The LyoDry Midi is suitable for a wide range of freeze drying duties, from diverse laboratory applications to industrial pilot plant work, including pharma, food and beverage applications. It can also be used as a condenser or solvent trap. UK designed, manufactured and maintained, quality assured.

-55°C or -85°C, 18Kg ice condenser capacity	Available with a wide choice of drying chambers and accessories (and compatible with most SuperModulyo accessories)
Large, alphanumeric display of vacuum and temperature units with backlit, matrix LCD display	User changeable vacuum and temperature units, user prompted vacuum pump control directly from display
System status - cooling / ready; easy to follow, user friendly commands	System start-up bar graph clearly indicates time remaining until 'Ready'
Automatic hot gas defrost; CFC free	Integral Edwards RV12 vacuum pump as standard or optional dry scroll pump
UK designed, manufactured and supported	12 month warranty; extendable to 24 months with a Service Contract option

LYODRY MIDI FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Part number and model	LSMC55 LyoDry Midi	LSMC85 LyoDry Midi
Maximum condenser chamber volume	44.5 litres	44.5 litres
Ice removal capacity (in 12 hours)	6 Kg (13 lbs)	6 Kg (13 lbs)
Ice removal capacity (in 24 hours)	10.5 Kg (23 lbs)	10.5 Kg (23 lbs)
Maximum ice capacity	18 Kg (40 lbs)	18 Kg (40 lbs)
Operating temperature (based on tests in well vented room at 20°C ambient; condenser under vacuum with no load)	-55°C	-85°C
Temperature display range	Ambient to -60°C	Ambient to -90°C
Pressure display range	0.01 mbar to 1000 mbar	0.01 mbar to 1000 mbar
Ultimate pressure	<5*10 ⁻² mbar	<5*10 ⁻² mbar
Refrigeration compressor type	1hp hermetic unit - CFC free	1 hp hermetic unit (x2) - CFC free
Dimensions (H x W x D)	945 x 700 x 950 mm	945 x 700 x 950 mm
Weight	230 Kg (507 lbs)	237kg (522 lbs)
Power requirements	230VAC/50 Hz, 13.0 A	230VAC/50 Hz, 13.0 A

Compact, free standing and castor mounted, the LyoDry Midi is designed to fit beside a standard laboratory bench with a fully accessible cabinet for easy access to the integral vacuum pump (an Edwards RV12 as standard, or the optional nXDS15i dry scroll pump if preferred). Automatic hot gas defrost, temperature and vacuum indicators provide added control and time saving advantages for your process. The LyoDry Midi features a clear, bright LCD display, visible even from a distance. User friendly commands allow the operator to view vacuum units in millibar, Torr or pascal and temperature in Celsius or Fahrenheit. System status is obvious at a glance. The vacuum pump is controlled on-screen and the user is prompted to do this when the condenser reaches temperature.

LyoDry Freeze Dryers conform to the latest environmental standards, manufactured by F-Gas certified engineers using CFC free refrigeration gas. LyoDry Freeze Dryers are designed to have fast cool down times, helping to minimise energy consumption and maximise life expectancy.

LYODRY MIDI ACCESSORIES and SPARES

Part number	Description
LSDC	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets
LSAD6	Acrylic drying chamber 350mm x 435mm, lid and 2 x L-gaskets with 6-product tray drying rack assembly, SS
LSDCV	Acrylic drying chamber with 8-port valve lid assembly with neoprene valves
LSAD6H	Heated tray drying accessory comprising: acrylic drying chamber 350mm diameter x 435mm, lid and 2 x L-gaskets, with 6-product tray rack assembly, heater mats and temperature controller
LSPM24	24-Port pipe manifold with removable neoprene valves, for flask drying
LSCC10	Front loading multi-shelf chamber with hinged door with viewport, 10 removable trays, unheated as standard or with optional heating (part no LSCC10H). Also available with optional manifolds for flask drying

View the full range of LYODRY / MODULYO [freeze dryer accessories and spares](#), or contact the sales team for further information

LYODRY MIDI PRO FREEZE DRYER

18Kg ice condenser, -55°C or -85°C condenser temperatures, data logging and analysis, pressure control, colour touch screen, ethernet comms, USB, choice of accessories for bulk or flask drying



LYODRY MIDI PRO FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**DATA LOGGING, TRENDS, PRESSURE CONTROL, MODULAR,
TOUCH SCREEN, -55°C OR -85°C CONDENSER**

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[LyoDry Midi Pro Freeze Dryer](#) features all of the advantages of the standard [LyoDry Midi Freeze Dryer](#), but is designed for more closely controlled freeze drying applications, with touch screen control and enhanced functionality including data logging, pressure control, real time and historical temperature and pressure trends, ethernet comms and USB.

A modular freeze dryer, it can be used with a choice of drying chambers and accessories for bulk or flask drying. If used with the Heated 6-Tray Accessory, or Heated 10-Tray Chamber (pictured right) then complex pressure/temperature profiles can be controlled accurately and reproducibly without operator intervention.

Compact, free standing and castor mounted, the LyoDry Midi Pro is designed to fit beside a standard laboratory bench with a fully accessible cabinet for easy access to the integral vacuum pump (an Edwards RV12 as standard, or the optional nXDS15i dry scroll pump if preferred).

LyoDry Freeze Dryers are UK designed, manufactured and supported by MechaTech Systems Ltd, used and endorsed by universities, government research institutes, pharma and food manufacturers, in the UK and globally.



LyoDry Midi with Heated 10-Tray Chamber

The LyoDry Midi Pro Freeze Dryer incorporates all features of the standard LyoDry Midi...

Condenser temperature -55°C or -85°C	CFC free condenser, ice capacity 18Kg
Modular - choice of drying chambers/manifold to suit your freeze drying application	Integral Edwards RV12 pump as standard or dry scroll pump available as option
Hot gas defrost	Directly replaces SuperModulyo freeze dryer
UK designed, manufactured and supported	12 month warranty; extendable to 24 months with a Service Contract option

...occupying the same footprint, with enhanced functionality:

Wide screen Touch Operator Interface with easy icon navigation	Real time and historical trending of temperature and pressure values
Data-logging	Pressure control
Password protection	Alarms history
Ethernet comms and USB	Multiple profile creation if used with Heated Accessory

LYODRY MIDI PRO FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Part number and model	LSM55P LyoDry Midi Pro	LSM85P LyoDry Midi Pro
Maximum condenser chamber volume	44.5 litres	44.5 litres
Ice removal capacity (in 12 hours)	6kg (13 lbs)	6kg (13 lbs)
Ice removal capacity (in 24 hours)	10.5kg (23 lbs)	10.5kg (23 lbs)
Maximum ice capacity	18kg (40 lbs)	18kg (40 lbs)
Operating temperature (based on tests in well vented room at 20°C ambient; condenser under vacuum with no load)	-55 °C	-85 °C
Temperature display range	Ambient to -60 °C	Ambient to -90 °C
Pressure display range	0.01 mbar to 1000 mbar	0.01 mbar to 1000 mbar
Pressure control range	0.05 - 1 mbar	0.05 - 1 mbar
Ultimate pressure	<5*10 ⁻² mbar	<5*10 ⁻² mbar
Data transfer port	USB	USB
Refrigeration compressor type	1 hp hermetic unit - CFC free	1 hp hermetic unit (x2) - CFC free
Dimensions (H x W x D)	945 x 700 x 950 mm	945 x 700 x 950 mm
Weight	230kg (507 lbs)	237kg (522lbs)
Power requirements	230VAC/50 Hz, 13.0 A	230VAC/50 Hz, 13.0 A

The LyoDry Midi Pro was originally designed as a direct replacement for the Edwards SuperModulyo® freeze dryer. Many standard SuperModulyo drying accessories (e.g. acrylic chamber, tray drying accessory, etc) are directly interchangeable, offering significant cost savings if only the condenser needs replacing. Choose from a variety of LyoDry accessories to accommodate bulk materials, flasks, vials and ampules. When used with either LSAD6H Heated Tray Drying Accessory or LSCC10H heated 10-tray chamber, multiple profiles (freeze drying 'recipes') can be created.



View the full range of LYODRY / SUPERMODULYO freeze dryer accessories and spares [ONLINE](#), or contact the sales team for further information

FREEZE DRYER CHAMBERS, MANIFOLDS AND ACCESSORIES



FREEZE DRYER ACCESSORIES



TECHNICAL VACUUM EXCELLENCE SINCE 2008

FOR LYODRY COMPACT / LYODRY BENCHTOP PRO / LYODRY MIDI / LYODRY MIDI PRO / MODULYO / SUPERMODULYO

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MechaTech Systems supply a wide range of freeze drying spares and accessories, designed for use with LyoDry Lab Freeze Dryers. In many cases, they are also compatible with Edwards Modulyo and Supermodulyo freeze dryers. We will be pleased to check this upon request. See the full range of accessories at: www.mechatechsystems.co.uk/freeze-dryer-spares

<p>Part No: LSDC Acrylic Drying Chamber</p>	<p>Part No: LSD6 6-Tray Drying Rack Assembly</p>	<p>Part No: LSDCV Acrylic Drying Chamber with 8-port valve lid assembly</p>	<p>Part No: LSAD6H Acrylic Drying Chamber with 6-Tray Rack Assembly, Heated</p>
			
<p>Acrylic drying chamber: 350mm dia x 435mm high, including clear acrylic lid and 2 x L-gaskets (direct replacement for Edwards part no F056-52-000)</p>	<p>6-tray drying rack assembly (for use inside LSDC acrylic chamber 350mm x 435mm), SS, unheated Each individual tray is 284mm dia x 30mm height. Trays are removable to suit a variety of applications and sample types</p>	<p>Multipurpose freeze drying chamber for bulk and flask drying comprising: Acrylic drying chamber: 350mm dia x 435mm high, and 2 x L-gaskets, with 8-port valve lid, including 8 x removable, neoprene vacuum isolation valves, 3/4" ID</p>	<p>Heated tray drying accessory comprising: Acrylic drying chamber 350mm dia x 435mm, lid and 2 x L-gaskets, with 6 SS product tray rack assembly, heater mats and temperature controller</p>
<p>Part No: LSCC10 Multipurpose 10-tray, SS chamber with single viewport</p>	<p>Part No: LSPM24 24-Port Column Manifold</p>	<p>Part No: CRVPRO8 Welch CRVPRO8 Vacuum Pump with Mist Filter</p>	<p>Part No: LSCT Trolley for LyoDry Compact or LyoDry Benchtop PRO</p>
			
<p>SS freeze drying chamber, with 10 removable trays each measuring 450mm wide x 345mm deep. With single viewport. Available unheated as standard, or with optional heating (part number LSCC10H). With optional manifold ports if required. Compatible with LyoDry Midi or LyoDry Midi Pro</p>	<p>24-Port column manifold for external drying of larger volumes of liquids or slurries in flasks. Includes 24 ports, mounted radially around column with 24 removable neoprene valves, each of which can be fitted with a flask of up to 1 litre capacity (flasks not supplied). A manifold sealing gasket is provided with to seal the base.</p>	<p>Recommended Vacuum Pump for use with LyoDry Compact or Modulyo Freeze Dryers, comprising: Welch CRVPro8 vacuum pump complete with mainslead, oil and exhaust mist filter</p>	<p>Purpose built SS trolley with castors and brakes, and bottom shelf to accommodate vacuum pump. Specially designed to be lower than a standard lab bench for easy access to drying chamber. With 2 x fixed castors and 2 x swivel castors with brakes</p>

HEATED TRAY DRYING ACCESSORY

MECHATECH
SYSTEMS

TECHNICAL VACUUM EXCELLENCE SINCE 2008

**BULK FREEZE DRYING WITH RADIANT HEAT, FOR USE WITH
LYODRY COMPACT, BENCHTOP PRO, MIDI & MIDI PRO CONDENSERS**

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The LyoDry Heated Tray Drying Accessory is one of [a range of freeze drying accessories](#) designed for use with LyoDry Benchtop and Midi freeze dryer condensers.

When used with the [LyoDry Benchtop Pro](#) or [LyoDry Midi Pro](#), multiple profile creation (freeze drying 'recipe' option) is enabled.

It is also compatible with Edwards and Savant Modulyo and Supermodulyo freeze dryers.

The heated tray accessory comprises:

- Acrylic Chamber 350mm dia x 435mm high
- Acrylic lid (part number LSAD6H) OR
- Acrylic 8-port lid (part number LSAD6HCV) with 8 x rubber valves (each 3/4" ID)
- Stainless steel rack assembly with 6 product trays, each measuring 284mm diameter x 25mm depth
- 6 x Heater Mats
- Temperature controller, 0 - 60°C, 230V, 50Hz

The LyoDry Heated Tray Drying Accessory is used for bulk drying material in beakers or on rack-mounted trays. It is useful where radiant heat is required and when a visual check of the product is necessary during the drying process.

The rack assembly will accommodate up to six product trays and heater mats, allowing use of different size containers. The heater mats provide a controlled heat input to bulk materials during the freeze drying process. Overload protection is provided by an internal safety thermostat.

The temperature display on the controller indicates the temperature local to the heater mat probe. The controller is supplied complete with power lead and electrical lead-throughs to fit the acrylic lid, a heater mat probe (thermocouple), and a power plug for the rack assembly.



LSAD6H can be used with LyoDry Benchtop and Midi freeze dryer condensers. It is also compatible with Edwards and Savant Modulyo and Supermodulyo freeze dryers.

LSSP SPIN FREEZER

MECHATECH
SYSTEMS

TECHNICAL VACUUM EXCELLENCE SINCE 2008

**INCLUDES 5 INTERCHANGEABLE CARRIERS INSIDE VACUUM
CHAMBER TO FACILITATE FREEZING AND PRIMARY DRYING**

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The LSSP Spin Freezer is a self-contained vacuum chamber which is designed to facilitate both the freezing and primary drying of samples in glass ampoules.

The LSSP is designed to operate as a low speed centrifuge. It utilizes evaporative cooling and centrifugation to freeze samples in a thin layer on one side of each ampoule for faster drying.

A simple timer can be set to automatically stop rotation when samples are fully frozen. Primary drying (sublimation of ice) then proceeds under vacuum.

For maximum versatility, LSSP is supplied complete with 5 interchangeable carriers constructed of aluminium, each capable of handling different sized ampoules (ampoules not supplied).

The LSSP Spin Freezer speed is 500 RPM at 50Hz. Time ranges can be set from 9 seconds to 999 hours. 230V, 50Hz supply (alternative supply available upon request).

The carriers will accommodate ampoules as follows:

Quantity:	Capacity:	Max OD:
96	0.5 ml ampoules	8.0 mm
64	1.0 / 2.0 ml ampoules	10.9 mm
36	3.0 ml ampoules	12.9 mm
24	5.0 ml ampoules	14.9 mm
14	10 ml ampoules	17.95 mm

Other sizes can be quoted upon request.

The LSSP Spin Freezer is compatible with the following freeze dryer condensers:

[LyoDry Compact Benchtop](#)

[LyoDry Benchtop Pro](#)

[LyoDry Midi](#)

[LyoDry Midi Pro](#)

Modulyo

Supermodulyo



SEE OUR FULL RANGE OF LYODRY / MODULYO FREEZE DRYER ACCESSORIES AND SPARES [ONLINE](#),
OR CONTACT OUR SALES TEAM FOR FURTHER DETAILS

LSDM24 / LSDM48 / LSDM96 SECONDARY DRYING MANIFOLD



FOR SECONDARY DRYING OF SAMPLES IN AMPOULES
AVAILABLE WITH EITHER 24, 48 OR 96 PORTS

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

Secondary Drying Manifolds are specifically designed to accommodate desorption or secondary drying of samples contained in glass ampoules.

Ampoules are arranged radially around a stainless steel column and may be flame sealed from this position while under vacuum.

A conical shaped rubber nipple is provided with each sample port. This rubber nipple accepts a wide variety of ampoule sizes.

Secondary Drying Manifolds are available in three different capacities: 24, 48 or 96 port.

The basic single column manifold holds up to 48 samples (part number LSDM48). Its capacity may be halved to accommodate only 24 samples at one time (part number LSDM24), or extended with an additional single column manifold to process up to 96 samples at one time (part number LSDM96).

Secondary drying manifolds are supplied complete with rubber nipples. Ampoules are not supplied.

Spare rubber nipples can also be supplied in packs of 48 (part number LSAN).

The LSDM Secondary Drying Manifold is compatible with the following freeze dryer condensers:

[LyoDry Compact Benchtop](#)

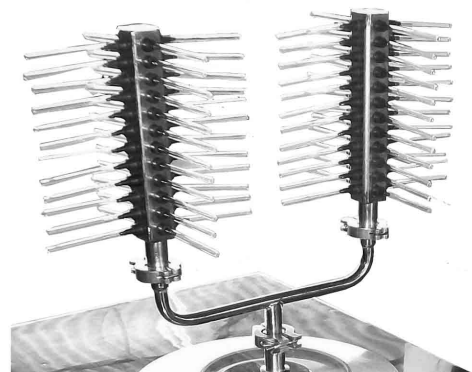
[LyoDry Benchtop Pro](#)

[LyoDry Midi](#)

[LyoDry Midi Pro](#)

Modulyo

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SEE OUR FULL RANGE OF LYODRY / MODULYO FREEZE DRYER ACCESSORIES AND SPARES [ONLINE](#),
OR CONTACT OUR SALES TEAM FOR FURTHER DETAILS

LYODRY LSCC10 10-TRAY FREEZE DRYER CHAMBER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**BULK FREEZE DRYING CHAMBER FOR USE WITH
LYODRY MIDI , MIDI PRO AND SUPERMODULYO CONDENSERS**

enquiries@mechatechsystems.co.uk
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LSCC10 is a stainless steel freeze dryer chamber, with 10 removable trays, providing a total drying area of 1.5m².

Each individual tray measures 450mm wide x 345mm deep. The gap between tray support rails is 85mm.

Fitted with single viewport for product viewing, the chamber is available unheated (part no LSCC10) as standard, or with optional heating (part no LSCC10H).

The chamber is suitable for use with [LyoDry Midi](#) or [LyoDry Midi Pro](#) freeze dryers. If the heated version (part no LSCC10H) is used with the LyoDry Midi Pro freeze dryer condenser, then multiple profiles (freeze drying 'recipes') can be created.

LSCC10 chamber can also be retro-fitted to an Edwards SuperModulyo Freeze Dryer Condenser.

For enhanced freeze drying and future-proofing, LSCC10 chamber can also be equipped with optional manifold ports, with removable neoprene vacuum isolation valves (3/4" ID), to enable freeze drying in flasks.

If the heated version is used with the LyoDry Midi Pro freeze dryer, then multiple profiles can be created



Optional manifold ports enable freeze drying in flasks



TECHNICAL SPECIFICATION

Part number and model	LSCC10 (unheated) LSCC10M (unheated with manifold ports)	LSCC10H (heated) LSCC10HM (heated with manifold ports)
Dimensions H x W x D (excludes lifting bosses)	950 mm x 554mm x 554 mm	950 mm x 554 mm x 554 mm
No of trays	10	10
Individual tray dimensions W x D x H	450 mm x 345 mm x 30 mm	450 mm x 345 mm x 30 mm
Gap between tray support rails	85mm	85mm
Optional manifold ports (up to 8 ports available - 4 per side)	3/4" ID vacuum isolation valves	3/4" ID vacuum isolation valves
Chamber material	304 SS (option 316)	304 SS (option 316)
Tray material	316 SS	316 SS
Viewport material	Soda Lime Glass	Soda Lime Glass
Weight	145Kg	147Kg
Chamber temperature	N/A	60°C
Power requirements	N/A	230V, 13A

LYODRY HERITAGE FREEZE DRYER

30L or 60L ice capacity, -55°C condenser, temperature controlled chamber; either heated only, to +50°C (NC version), or -40°C to +50°C



LYODRY HERITAGE NC (NO COOLING) FREEZE DRYER



**HEATED DRYING CHAMBER TO 50°C, 5-TRAY
FRONT LOADING, 30L OR 60L ICE CONDENSER CAPACITY**

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

The [LyoDry Heritage NC](#) freeze dryer is ideal for pilot, or small scale production freeze drying of food and beverages, or for the preservation of archaeological materials, flowers or documents.

The LyoDry Heritage NC comprises a 30L, or 60L, capacity -55°C condenser and a SS, front-loading drying chamber heated up to +50°C.

The NC model does not include pre-freezing and is therefore a more budget conscious option than the standard LyoDry Heritage freeze dryer.

Five removable stainless steel trays provide either a 2.6m² or a 5.2m² drying area, accessed via a clear perspex, hinged door for easy loading and visibility throughout the freeze drying cycle.

A transparent door at the front of the condenser enables easy defrosting of the condenser chamber.



Process variables, product temperatures, system status and fault indicators are viewed in real time and logged continuously to memory via the user friendly, touch-screen Operator Interface. A USB port is provided for data retrieval, and optional Remote View via your own external computer is available if required. System status is obvious at a glance.

LYODRY HERITAGE NC offers a reliable, high-end, yet economical freeze drying solution for accurate, controlled batch freeze drying of a broad variety of products including food and beverage, petfood, archaeological, flower petals and document drying.

Shelf area options of either 2.6m ² or 5.2m ²	-55°C condenser with either 30Kg or 60Kg ice condenser capacity options
Heated chamber to +50°C, 5 removable stainless steel product trays	Touch screen control, data logging, real time and historical analysis, USB, remote view (option)
Up to 200 reproducible process profiles (recipes)	Front loading, stainless steel chamber with clear, perspex hinged door
Automatic hot gas defrost	12 month warranty. Extendable to 24 months with a Service Contract option
Installation, commissioning and training	UK designed, manufactured and supported

LYODRY HERITAGE NC (NO COOLING) FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

Part number and model	LSH30NC LyoDry Heritage	LSH60NC LyoDry Heritage
Maximum ice capacity	30kg (66 lbs)	60kg (132 lbs)
Condenser operating temperature (based on based on tests in well vented room; condenser under vacuum with no load)	-55 °C	
Refrigeration compressor type	1 hp hermetic unit - CFC free - air cooled	
Maximum operating temperature (measured on inside chamber wall at 22°C ambient temperature)	+50°C	
No of trays	5	
Individual tray dimensions	2 trays @ 65cm x 97cm each 3 trays @ 46cm x 97cm each	2 trays @ 65cm x 193cm each 3 trays @ 46cm x 193cm each
Total area of trays	2.6m ²	5.2m ²
Chamber dimensions	1m length x 0.75m diameter	2m length x 0.75m diameter
Construction	Stainless steel chamber and trays; Acrylic door; Viton door seal	
Approximate dimensons (H x W x D)	1800 x 1000 x 2150mm	1800 x 1700 x 2150mm
Approximate weight	852kg (1878 lbs)	
Power requirements	230VAC/50 Hz, 16.0 A	

LyoDry Heritage NC Freeze Dryer is ideal for a range of freeze drying applications, including:



LYODRY HERITAGE FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**TEMPERATURE CONTROLLED DRYING CHAMBER -40°C TO 50°C
5-TRAY, FRONT LOADING, 30L OR 60L ICE CONDENSER CAPACITY**

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

The [LyoDry Heritage](#) is a complete freeze drying system, ideal for pilot, or small scale production freeze drying of food and beverages, or for the preservation of archaeological materials, flowers or for document drying.

The LyoDry Heritage comprises a 30L or 60L capacity, -55°C condenser and a SS, front-loading drying chamber with operating temperatures of -40°C to +50°C.

Five removable stainless steel trays provide either a 2.6m² or a 5.2m² drying area, accessed via a clear perspex, hinged door for easy loading and visibility throughout the freeze drying cycle. A transparent door at the front of the condenser enables easy defrosting of the condenser chamber.

Occupying a compact footprint, the LyoDry Heritage is castor-mounted and includes all of the standard LyoDry Freeze Dryer features, such as automatic hot gas defrost for faster batch processing, and CFC free refrigeration.



Process variables, product temperatures, system status and fault indicators are viewed in real time and logged continuously to memory via the user friendly, touch-screen Operator Interface. A USB port is provided for data retrieval, and optional Remote View via your own external computer is available if required. System status is obvious at a glance.

The LyoDry Heritage offers a reliable, high-end, yet economical freeze drying solution for accurate, controlled batch freeze drying of a broad variety of products including food and beverage, petfood, archaeological, flower petals and document drying.

Shelf area options of either 2.6m ² or 5.2m ²	-55°C condenser with either 30Kg or 60Kg ice condenser capacity options
Temperature controlled chamber -40°C to +50°C, 5 removable stainless steel product trays	Touch screen control, data logging, real time and historical analysis, USB, remote view (option)
Up to 200 reproducible process profiles (recipes)	Front loading, stainless steel chamber with clear, perspex hinged door
Automatic hot gas defrost	12 month warranty. Extendable to 24 months with a Service Contract option
Installation, commissioning and training	UK designed, manufactured and supported

LYODRY HERITAGE FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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+44 (0) 1454 414723

Part number and model	LSH30 LyoDry Heritage	LSH60 LyoDry Heritage
Maximum ice capacity	30kg (66 lbs)	60kg (132 lbs)
Operating temperature (based on based on tests in well vented room; condenser under vacuum with no load)	-55 °C	
Refrigeration compressor type	1 hp hermetic unit - CFC free - air cooled	
Maximum operating temperature (measured on inside chamber wall at 22°C ambient temperature)	+50°C	
Minimum operating temperature (measured on inside chamber wall at 22°C ambient temperature)	-40°C	
No of trays	5	
Individual tray dimensions	2 trays @ 65cm x 97cm each 3 trays @ 46cm x 97cm each	2 trays @ 65cm x 193cm each 3 trays @ 46cm x 193cm each
Total area of trays	2.6m ²	5.2m ²
Chamber dimensions	1m length x 0.75m diameter	2m length x 0.75m diameter
Construction	Stainless steel chamber and trays; Acrylic door; Viton door seal	
Approximate dimensons (H x W x D)	1800 x 1000 x 2150mm	1800 x 1700 x 2150mm
Approximate weight	852kg (1878 lbs)	
Power requirements	230VAC/50 Hz, 16.0 A	

LyoDry Heritage Freeze Dryer is ideal for a range of freeze drying applications, including:



LYODRY MAXI FREEZE DRYER

18L ice condenser, -55°C or -85°C condenser,
-40°C or -60°C to +60°C shelves
endpoint determination, stoppering, pressure control



LSM40 LYODRY MAXI CHAMBER FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

FULLY AUTOMATED, CONTROLLABLE SHELF TEMPERATURES
-40°C TO +60°C, DATA LOGGING/ANALYSIS, STOPPERING OPTION

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

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

LSM40 [LyoDry Maxi Freeze Dryer](#) is suitable for vial and bulk samples for laboratory and pharmaceutical applications. Utilising the very latest technology in vacuum, refrigeration and control, LSM40 LyoDry Maxi 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.

UK designed, manufactured and maintained. Quality assured.



Option of 3, 4 or 5 shelves, shelf area up to 0.85m ² , temperature controlled -40°C to +60°C	18Kg ice condenser capacity, -55°C condenser temperature
Fully automated, touch screen control	Data logging, real time and historical analysis, remote view (option)
Up to 200 reproducible process profiles (recipes)	Password protected user accounts
Stoppering (option), Pressure Control (option)	Automatic end point determination
Hot gas defrost	CFC refrigeration
Designed to fit through a standard laboratory doorway	Dry vacuum pump (option) 316L SS finish (option)
12 month warranty, extended warranties available (option)	Installation, commissioning, operator training
UK designed, manufactured and maintained	Quality assured

LSM40 LyoDry Maxi has the option of either three, four or five temperature controlled shelves, between -40°C and +60°C with an accuracy of better than $\pm 0.5^\circ\text{C}$. The shelves can be moved up and down via a hydraulically operated ram for stoppering.

Freezing, primary and secondary drying, end point determination, backfill and stoppering sequences are all controlled by a central processor unit, allowing complex pressure/temperature profiles to be controlled accurately and reproducibly without operator intervention. In excess of 200 profiles can be stored and retrieved as required.

The compact design allows the equipment to move easily through most standard sized laboratory doorways, and commissioning is simple and straightforward requiring only mains electric supply (no pneumatic or water services needed).

LSM40 LYODRY MAXI CHAMBER FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Shelf Temperature		-40°C to +60°C
Max Condenser Temperature		-55°C
Condenser Capacity		18 Litres
Condenser Rate		12 litres in 24 hours
Condenser Defrost		Hot gas
Refrigeration		CFC Free - Single - Air Cooled
No. Of shelves (excluding compensating shelf)		3/4/5
Shelf area (per shelf)		0.172 m ²
Shelf dimensions (w x d)		360 x 480
Shelf material		316L Stainless Steel
Shelf Heat Transfer		Silicon Fluid
Working height:	3 shelf	min 44 mm; max 100 mm
	4 shelf	min 30 mm; max 72 mm
	5 shelf	min 21 mm; max 55 mm
Shelf cool down times (with no load, from 25°C)		
	(to -15°C)	30 minutes
	(to -30°C)	60 minutes
	(to -35°C)	90 minutes
	(to -38°C)	120 minutes
	(to -39°C)	150 minutes
	(to -40°C)	180 minutes
Stoppering		Electrical/Automatic
Vacuum pump:	1. Type	Edwards RV12 with EMF20 mist filter
	2. Nominal Pumping Speed	12 m ³ /hr
	3. Pump down time (to 0.5mbar)	Approx. 10 minutes
Vacuum gauge		Pirani (or Capacitance Manometer option)
Inter-chamber valve		Electrical QSB
Electrical:	a) UK supply	230V, 50Hz, 1ph, 16 amp
	b) US supply	110V, 60Hz, 1ph
Dimensions (w x h x d) (including turret)		700 x 2120 x 1050mm
Gross weight		525 Kg
Temperature Control		< ±0.5°C
Data Logging		Yes
End Point Determination		Pressure rise
Pressure Control		Optional

MechaTech Systems Ltd 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 client's presence. Service contracts with extended warranties are available as an option.

LSM60 LYODRY MAXI CHAMBER FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

FULLY AUTOMATED, CONTROLLABLE SHELF TEMPERATURES
-60°C TO +60°C, DATA LOGGING/ANALYSIS, STOPPERING OPTION

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

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

LSM60 [LyoDry Maxi Freeze Dryer](#) is suitable for vial and bulk samples for laboratory and pharmaceutical applications. Utilising the very latest technology in vacuum, refrigeration and control, LSM60 LyoDry Maxi 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.

UK designed, manufactured and maintained. Quality assured.



Option of 3, 4 or 5 shelves, shelf area up to 0.85m ² , temperature controlled -60°C to +60°C	18Kg ice condenser capacity, -85°C condenser temperature
Fully automated, touch screen control	Data logging, real time and historical analysis, remote view (option)
Up to 200 reproducible process profiles (recipes)	Password protected user accounts
Stoppering (option), Pressure Control (option)	Automatic end point determination
Hot gas defrost	CFC refrigeration
Designed to fit through a standard laboratory doorway	Dry vacuum pump (option) 316L SS finish (option)
12 month warranty, extended warranties available (option)	Installation, commissioning, operator training
UK designed, manufactured and maintained	Quality assured

LSM60 LyoDry Maxi has the option of either three, four or five temperature controlled shelves, between -60°C and +60°C with an accuracy of better than ± 0.5°C. The shelves can be moved up and down via a hydraulically operated ram for stoppering.

Freezing, primary and secondary drying, end point determination, backfill and stoppering sequences are all controlled by a central processor unit, allowing complex pressure/temperature profiles to be controlled accurately and reproducibly without operator intervention. In excess of 200 profiles can be stored and retrieved as required.

The compact design allows the equipment to move easily through most standard sized laboratory doorways, and commissioning is simple and straightforward requiring only mains electric supply (no pneumatic or water services needed).

LSM60 LYODRY MAXI CHAMBER FREEZE DRYER

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TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

enquiries@mechatechsystems.co.uk
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Shelf Temperature		-60°C to +60°C
Max Condenser Temperature		-85°C
Condenser Capacity		18 Litres
Condenser Rate		12 litres in 24 hours
Condenser Defrost		Hot gas
Refrigeration		CFC Free - Cascade - Air Cooled
No. Of shelves (excluding compensating shelf)		3/4/5
Shelf area (per shelf)		0.172 m ²
Shelf dimensions (w x d)		360 x 480
Shelf material		316L Stainless Steel
Shelf Heat Transfer		Silicon Fluid
Working height:	3 shelf	min 44 mm; max 100 mm
	4 shelf	min 30 mm; max 72 mm
	5 shelf	min 21 mm; max 55 mm
Shelf cool down times (with no load, from 25°C)		
	(to -35°C)	50 minutes
	(to -40°C)	60 minutes
	(to -55°C)	130 minutes
	(to -60°C)	160 minutes
Stoppering		Electrical/Automatic
Vacuum pump:	1. Type	Edwards RV12 with EMF20 mist filter
	2. Nominal Pumping Speed	12 m ³ /hr
	3. Pump down time (to 0.5mbar)	Approx. 10 minutes
Vacuum gauge		Pirani (or Capacitance Manometer option)
Inter-chamber valve		Electrical QSB
Electrical:	a) UK supply	230V, 50Hz, 1ph, 32 amp
	b) US supply	110V, 60Hz, 1ph
Dimensions (w x h x d) (including turret)		700 x 2120 x 1050mm
Gross weight		525 Kg
Temperature Control		±0.5°C
Data Logging		Yes
End Point Determination		Pressure rise
Pressure Control		Optional

MechaTech Systems provide installation, commissioning and end user training for the entire range of [LyoDry freeze dryers](#). 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 client's presence. Service contracts with extended warranties are available as an option.

LYODRY GRANDE FREEZE DRYER

30L ice capacity, -55°C or -85°C condenser,
-40°C or -60°C to +60°C shelves
endpoint determination, stoppering, pressure control



LSG40 LYODRY GRANDE CHAMBER FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**FULLY AUTOMATED, CONTROLLABLE SHELF TEMPERATURES
-40°C TO +60°C, DATA LOGGING/ANALYSIS, STOPPERING OPTION**

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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.

LSG40 [LyoDry Grande Freeze Dryer](#) is ideally suited to laboratory and pharmaceutical applications. LSG40 uses the latest technology in vacuum, refrigeration and control, providing 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.

UK designed, manufactured and maintained. Quality assured.

Large shelf area 1.69m ² , 9 shelves, temperature controlled -40°C to +60°C	30Kg ice condenser capacity, -55°C condenser temperature
Fully automated, touch screen control	Data logging, real time and historical analysis, remote view (option)
Up to 200 reproducible process profiles (recipes)	Password protected user accounts
Stoppering (option)	Automatic end point determination
Hot gas defrost	CFC refrigeration
12 month warranty, extended warranties available (option)	Installation, commissioning, operator training
UK designed, manufactured and maintained	Quality assured



LSG40 LyoDry Grande has nine temperature controlled shelves, between -40°C and +60°C with an accuracy of better than $\pm 0.5^\circ\text{C}$.

Based around a large drying chamber mounted alongside a refrigerated chamber, the integral refrigerated shelves can be moved up and down via a hydraulically operated ram for stoppering.

Freezing, primary and secondary drying, end point determination, backfill and stoppering sequences are all controlled by a central processor unit, allowing complex pressure/temperature profiles to be controlled accurately and reproducibly without operator intervention. In excess of 200 profiles can be stored and retrieved as required.

An additional product safety feature automatically diverts the condenser refrigeration power to 'crash' cool the product if the shelf cooling system fails. This facility averts significant potential losses by providing protection for the product.

LSG40 LYODRY GRANDE CHAMBER FREEZE DRYER

MECHATECH
SYSTEMS

TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Condenser temperature	-55°C	
Shelf temperature	-40°C to +60°C	
Condenser capacity	30 litres	
Condenser rate	1 litre/hour	
Defrost	Hot water / hot gas	
Defrost time (water inlet temperature @ 40°C)	~ 20 minutes	
Refrigeration	CFC Free - Single - water cooled	
Number of shelves (excluding radiant shelf)	9	
Shelf area (per shelf)	0.187m ²	
Shelf dimensions (W x D)	375 x 500 mm	
Total shelf area	1.69m ²	
Shelf/chamber material	316L stainless steel	
Shelf heat transfer	Silicon fluid	
Working height (max shelf gap)	98mm	
(min shelf gap)	35mm	
Shelf cool down times (fluid temperature measurement, with no product, from 4°C with both refrigeration units):		
	to -35°C	50 minutes
	to -40°C	60 minutes
Temperature control	< ± 0.5°C	
Shelf temperature uniformity	± 1°C	
Stoppering	Hydraulic / automatic	
Inter-chamber valve	Electrical QSB	
Electrical, UK supply	415V, 50Hz, 3ph, 15kW	
Dimensions, not including oil reservoir (w x h x d)	1505 x 1940 x 1000mm	
Gross weight	1300 Kg	
Data logging	Yes	
End point determination	Pressure rise	
Pressure control	Optional	
Product probes	9	
Output noise	<75 dB at 1m	
Cooling water usage	1.2m ³ /h max 10°C (cooling capacity 7.2kW)	
Approximate peak room heat generated	3kW (10,000 BTU/h)	
Defrost water temperature	40°C minimum	
Compressed air	6 bar (87 psig)	
Nitrogen backfill / pressure control	1 bar supply regulated to 3 psig	



User friendly interface with
200 retrievable process profiles



9 x 316L SS product shelves with
optional stoppering

LSG60 LYODRY GRANDE CHAMBER FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**FULLY AUTOMATED, CONTROLLABLE SHELF TEMPERATURES
-60°C TO +60°C, DATA LOGGING/ANALYSIS, STOPPERING OPTION**

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

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

LSG60 [LyoDry Grande Freeze Dryer](#) is ideally suited to laboratory and pharmaceutical applications. It uses the latest technology in vacuum, refrigeration and control, providing 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.

UK designed, manufactured and maintained. Quality assured.

Large shelf area 1.69m ² , 9 shelves, temperature controlled $\pm 60^\circ$	30Kg ice condenser capacity, -85°C condenser temperature
Fully automated, touch screen control	Data logging, real time and historical analysis, remote view (option)
Up to 200 reproducible process profiles (recipes)	Password protected user accounts
Stoppering (option)	Automatic end point determination
Pressure control	Hot gas defrost
CFC refrigeration	12 month warranty, extended warranties available (option)
Installation, commissioning, operator training	UK designed, manufactured and maintained



LSG60 LyoDry Grande has nine temperature controlled shelves, between $\pm 60^\circ\text{C}$ with an accuracy of better than $\pm 0.5^\circ\text{C}$.

Based around a large drying chamber mounted alongside a refrigerated chamber, the integral refrigerated shelves can be moved up and down via a hydraulically operated ram for stoppering.

Freezing, primary and secondary drying, end point determination, backfill and stoppering sequences are all controlled by a central processor unit, allowing complex pressure/temperature profiles to be controlled accurately and reproducibly without operator intervention. In excess of 200 profiles can be stored and retrieved as required.

An additional product safety feature automatically diverts the condenser refrigeration power to 'crash' cool the product if the shelf cooling system fails. This facility averts significant potential losses by providing protection for the product.

LSG60 LYODRY GRANDE CHAMBER FREEZE DRYER

MECHATECH
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TECHNICAL VACUUM EXCELLENCE SINCE 2008

TECHNICAL SPECIFICATION

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Condenser temperature	-85°C
Shelf temperature	-60°C to +60°C
Condenser capacity	30 litres
Condenser rate	1 litre/hour
Defrost	Hot water / hot gas
Defrost time (water inlet temperature @ 40°C)	~ 20 minutes
Refrigeration	CFC Free - Cascade - water cooled
Number of shelves (excluding radiant shelf)	9
Shelf area (per shelf)	0.187m ²
Shelf dimensions (W x D)	375 x 500 mm
Total shelf area	1.69m ²
Shelf/chamber material	316L stainless steel
Shelf heat transfer	Silicon fluid
Working height (max shelf gap)	98mm
(min shelf gap)	35mm
Shelf cool down times (fluid temperature measurement, with no product, from 4°C with both refrigeration units):	
to -45°C	30 minutes
Temperature control	< ± 0.5°C
Shelf temperature uniformity	± 1°C
Shelf temperature uniformity between shelves	1°C
Stoppering	Hydraulic / automatic
Evacuation time (to 0.5 mbar)	~ 10 minutes
Inter-chamber valve	Electrical QSB
Electrical, UK supply	415V, 50Hz, 3ph, 15kW
Dimensions, not including oil reservoir (w x h x d)	1505 x 1940 x 1000mm
Gross weight	1400 Kg
Data logging	Yes
End point determination	Pressure rise
Product probes	9
Output noise	<75 dB at 1m
Cooling water usage	1.2m ³ /h max 10°C (cooling capacity 8kW)
Approximate peak room heat generated	3kW (10,000 BTU/h)
Defrost water temperature	40°C minimum
Compressed air	6 bar (87 psig)
Nitrogen backfill / pressure control	1 bar supply regulated to 3 psig



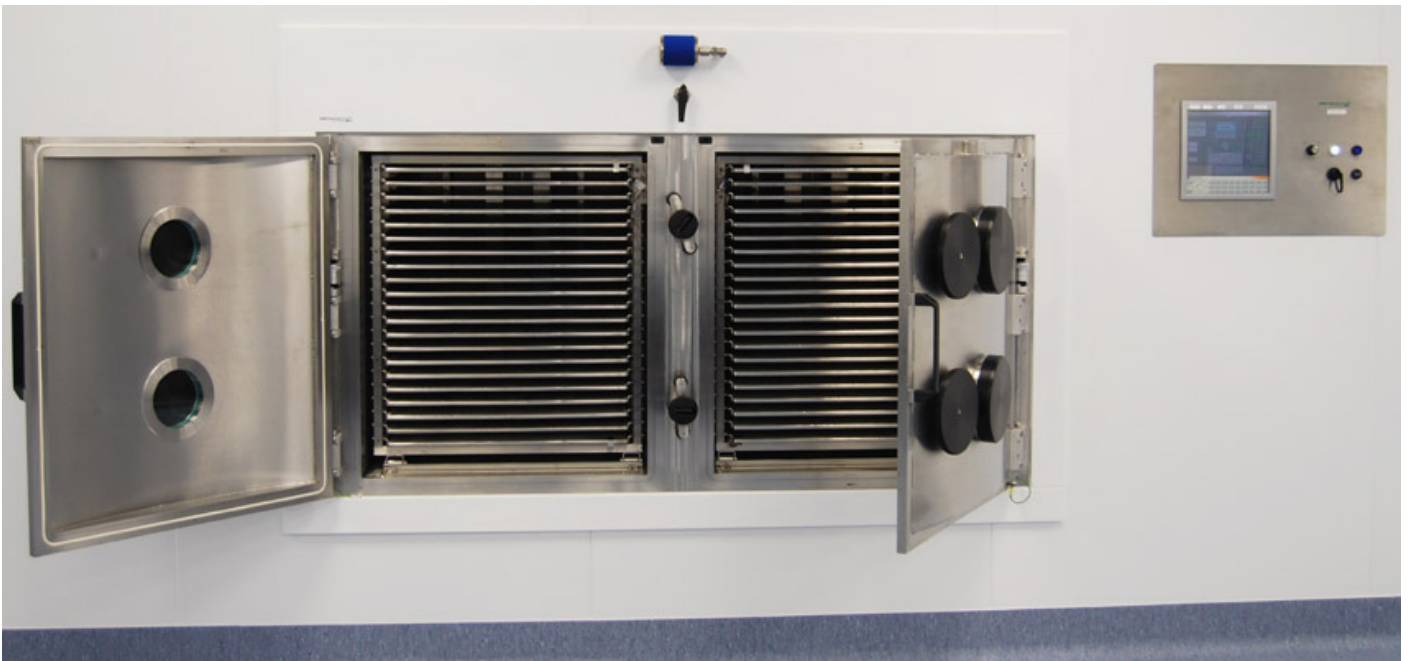
User friendly interface with
200 retrievable process profiles



9 x 316L SS product shelves with
optional stoppering

LYODRY PRODUCTION FREEZE DRYER

15Kg or 30Kg ice condenser, -55°C condenser, -60°C to +60°C shelves
endpoint determination, separate plant room



LYODRY PRODUCTION FREEZE DRYER



TECHNICAL VACUUM EXCELLENCE SINCE 2008

**UP TO 42 TEMPERATURE CONTROLLED SHELVES $\pm 60^{\circ}\text{C}$,
DATA LOGGING/ANALYSIS, TOUCH SCREEN**

enquiries@mechatechsystems.co.uk
+44 (0) 1454 414723

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 [LyoDry Production Freeze Dryer](#) 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 $\pm 60^{\circ}\text{C}$.

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 16.8m ² , high capacity ice condenser)	42 temperature controlled shelves (including 2 radiant shelves) $\pm 60^{\circ}\text{C}$
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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SHELF	dimensions (w x d)	600 mm x 680mm	
	surface area (each)	0.4m ²	
	thickness	11.55mm ± 0.15mm	
	material	316L stainless steel	
	flatness / m	± 1.5mm	
	temp. variation across shelf (with static load)	± 1.2°C	
	cooling rate / min	0.5°C / min	
	heating rate / min	2°C/min	
	temperature control (stable state)	± 1°C	
	temperature range	-60°C to 60°C	
	CONDENSER	material	316L stainless steel
	Condenser minimum operating temperature (no load, under vacuum)		≤ -80°C
		ice capacity: single condenser	15
dual condenser		30	
	condensing rate	10 l/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	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	< 5 minutes	
WEIGHT		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.

FREEZE DRYER HIRE MONTHLY RENTAL OPTIONS



FREEZE DRYER HIRE



TECHNICAL VACUUM EXCELLENCE SINCE 2008

MONTHLY RENTAL OF RECONDITIONED BENCHTOP FREEZE DRYERS

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In addition to LyoDry Freeze Dryers that we manufacture, we also provide short and long term rental of reconditioned benchtop freeze dryers for the purpose of conducting your own in-house trials or short term R&D project. If trials are successful, and you then decide to invest in a new freeze dryer, we can offset some of the hire cost against new equipment.

We offer the following freeze dryers for hire, subject to availability:



LYODRY COMPACT BENCHTOP FREEZE DRYER

The LSBC55 LyoDry Compact benchtop freeze dryer condenser has an ice condenser capacity of 5Kg, and a condenser temperature of -55°C .

The LyoDry Compact benchtop freeze dryer is supplied for hire complete with vacuum pump and Acrylic Chamber and 6-tray accessory (removable trays)



LYODRY BENCHTOP PRO FREEZE DRYER

The LSB55P LyoDry Benchtop Pro freeze dryer condenser has an ice condenser capacity of 5Kg, and a condenser temperature of -55°C . It has enhanced functionality including touch screen control, pressure control, data logging and analysis, USB and ethernet comms. Coupled with the LSAD6H Heated Tray Accessory, multiple profiles can be used reproducibly without operator intervention.

The LyoDry Benchtop Pro freeze dryer is supplied for hire with vacuum pump and LSAD6H Heated Tray Accessory comprising Acrylic Chamber and 6 x SS trays with heater mat and temperature controller



MODULYO BENCHTOP FREEZE DRYER

The Modulyo benchtop freeze dryer condenser has an ice condenser capacity of 4.5Kg, and a condenser temperature of -50°C .

The Modulyo benchtop freeze dryer is supplied for hire complete with vacuum pump and Acrylic Chamber and 6-tray accessory (removable trays)

CONTACT US FOR A QUOTATION AND/OR FURTHER INFORMATION

LYODRY FREEZE DRYERS

DESIGNED, MANUFACTURED AND MAINTAINED BY



TECHNICAL VACUUM EXCELLENCE SINCE 2008

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