

Laboratory Freeze Dryers

A comprehensive range of large capacity floor standing research, process development and small scale production freeze dryers offering.

Sophistication with Simplicity of operation with condenser temperatures to $-95\text{ }^{\circ}\text{C}$ and pre-freeze to $-80\text{ }^{\circ}\text{C}$ for bulk or vial drying to 1.2 m^2 .

»ScanVac
- Innovation from Experience



CoolSafe 95/55-80 Pro or Superior

a superlative and versatile range of advanced floor standing freeze dryers that have evolved from over 40 years experience and expertise which are the perfect choice for research, process development and small scale production.

Available in 3 configurations:

- Superior Bulk
- Superior Vial
- Pro

All with a choice of either -55 °C or -95 °C condenser temperatures. All models offer both simplicity of operation and the highest performance characteristics to meet the demands of today's research and development laboratories.

Today the CoolSafe Freeze Dryers have a proven track-record in:

- Quality control and research of food materials, bacteria, meat and dairy products
- Improved Preservation and presentation of floral materials and arrangements



- Pharmaceutical research, production and pilot studies/ scale-up protocols
- Vaccines and Anti-toxins
- Food preservation i.e. fish, shell-fish, milk and milk products, vegetables, edible mycelia, soft fruits and berries etc.
- Tissues and cells for electron microscopy
- Human and animal tissue and bone, excreta etc. in medical research
- Conservation of archaeological items such as wood, leather, textiles etc.
- Restoration of water damaged books, documents and paper materials





CoolSafe 95/55-80 Superior
with flask manifold & shelves in condenser.

CoolSafe 95/55-80 Superior - Flexibility of Choice

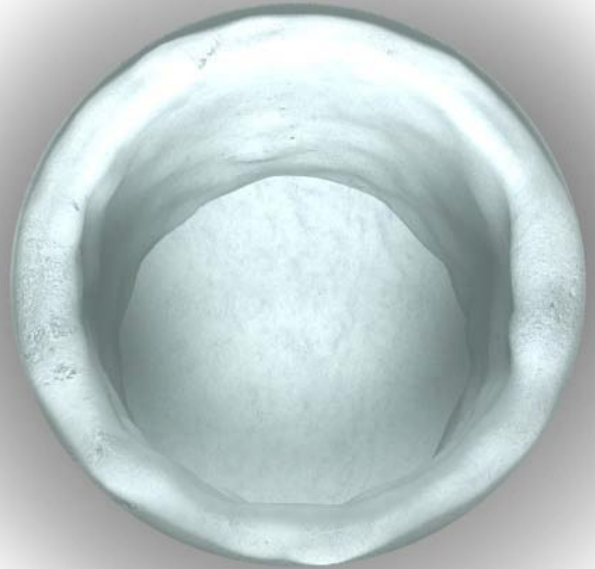
- Automatic Freeze Drying with pre-freeze facility down to -40 °C or -80 °C
- Automatic modes of operation with auto switching, allowing programming in 15 discrete steps through PC
- Choice of condenser temperature, -55 °C for eutectic formers or -95 °C for "glass" formers or samples containing organic solvents or acids
- Choice of configuration for either Bulk or Vial drying
- 5 x ¾ inch rubber valve attachment for simultaneously flask drying or connection of other CoolSafe freeze drying chambers from the full programme of Add-On accessories – See CoolSafe Bench top models
- High capacity RZ6 vacuum pumps with oil mist elimination and anti blow back valve with pressure to 0.001 mbar (optional choice of any vacuum pump)



CoolSafe with stoppering unit connection.

Features of Quality

- Large capacity, seamless stainless steel condenser, with external cooling coils and electric de-icing as standard
- Seamless condenser for longer life, easy cleaning and de-ice
- Microprocessor Control and display of Condenser, Shelf and Product Temperatures
- Front-loading for ease of access, loading and supervision
- Fully automatic control of pre-freeze in 5 steps for correct ice crystal formation and then primary drying and secondary drying phases in 10 programmable steps
- Shelf temperature control from -80 °C to +80 °C on -95 °C models
- The shelf temperature control allows ramping in the pre-freeze for complete control of ice crystal formation to give optimal conditions for freeze drying
- Condenser Ice capacity of 10 kg/24 hours
- Total workable ice capacity of 40 kg
- Large condenser area of more than 1.0 m² for high uniform performance during freeze drying process
- Mounted on lockable castors for ease of locating/positioning of floor and versatility
- Alarms for low/high temperature/vacuum
- Easy service and maintenance
- Optional Teflon coating of condenser chamber
- Optional vacuum regulation for control of primary drying phase



Large, Seamless, Stainless steel condenser chamber with electric de-icing & connections for electrically heated shelves.

CoolSafe 95/55-80 Superior Bulk

This is the model of choice for “bulk” drying of materials on shelves, with the unique chamber design that is located inside the condenser. This allows for easy loading and removal of the trays and offers superior, reproducible freeze drying performance, with incremental pre-freeze temperature steps.

This together with a short vapour pathway, ensures reproducible results with maximum recovery of the sample, time after time.

The chamber can accommodate up to 5 or 8 electrically heated shelves, with trays, giving a total area up to 0.75m² (bulk-1) or 1.2m² (bulk-2). Furthermore, because of the chamber design and configuration inside the condenser, pre-freezing down to -80 °C can be achieved (-95 °C models only) allowing uniform ice crystal formation, avoidance of product collapse and with automatic trouble free transition to the primary drying phase.

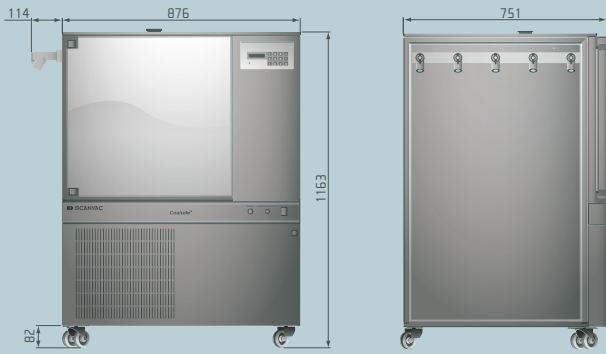
The **Microprocessor Controller** (available on all models) with digital display of temperature and pressure allows for programming of shelf temperature in 15 distinct steps, 5 for incremental pre-freezing control and 10 for heat transfer control during the primary and secondary drying phases. This gives complete programming for the complete drying cycle.

Precise temperature regulation, with uniformity better than ± 0.5 °C, and shelf to shelf deviation less than ± 0.5 °C, and with temperature control of each shelf by Pt sensors, one per shelf. This provides both reproducibility and batch uniformity.

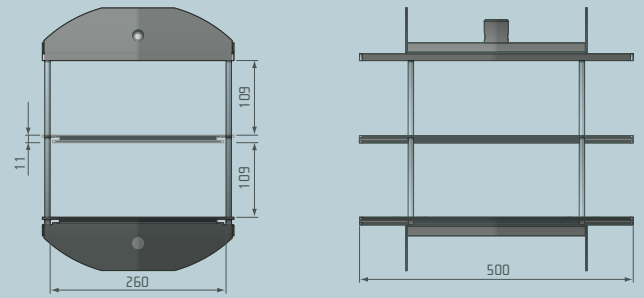
The option for remote control and data capture/storage with GMP-documentation via USB and PC interface connection, is available and is required for full programming capability.



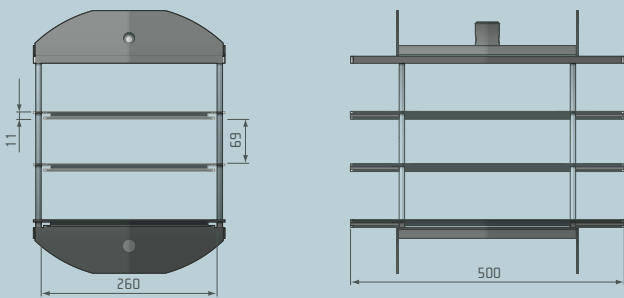
Dimension Superior



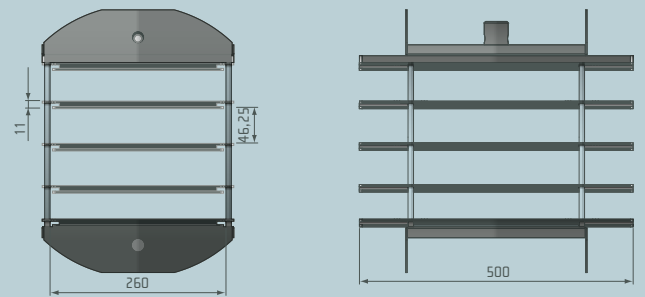
Distance between 2 shelf stoppinger superior



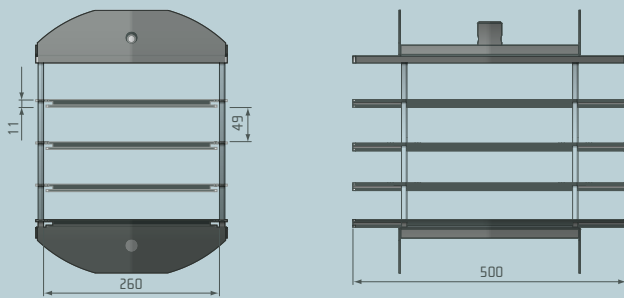
Distance between 3 shelf stoppinger superior



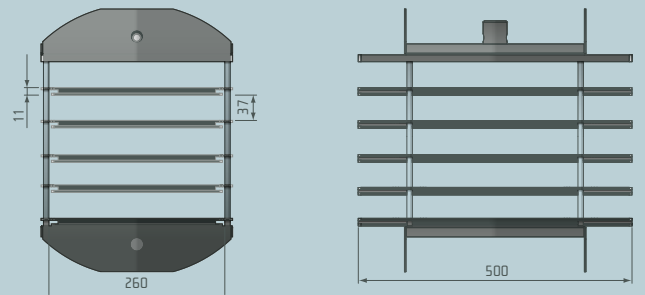
Distance between 4 shelf and 1 radiation shelf stoppinger superior



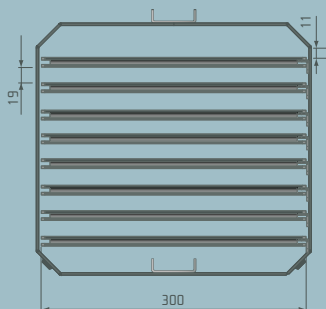
Distance between 4 shelf stoppinger superior



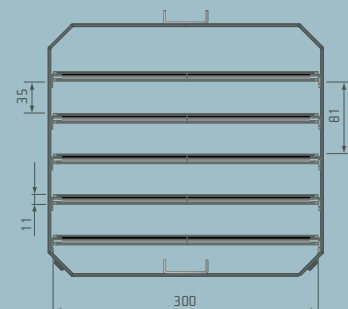
Distance between 5 shelf stoppinger superior



Bulk-2 Assembly specification - 8 shelf Pic



Bulk-1 Assembly specification - 5 shelf



CoolSafe Superior-Vial

The freeze dryer specifically constructed for freeze drying in vials, and offering all requirements for process or product development and small scale production. The innovative chamber configuration, inside the condenser, offers incremental pre-freezing down to $-80\text{ }^{\circ}\text{C}$ on up to 5 electrically heated shelves and also shelf temperature programming in 5 pre-freeze steps and 10 freeze drying steps, with pressure regulation for the primary and secondary drying phases. Complete drying cycles can be formulated according to the parameters of choice and if necessary can be modified or changed to attain optimal freeze drying protocols for your samples.

Precise temperature regulation, with uniformity better than $\pm 0.5\text{ }^{\circ}\text{C}$, and shelf to shelf deviation less than $\pm 0.5\text{ }^{\circ}\text{C}$, and with temperature control of each shelf by Pt sensors, one per shelf. This provides both reproducibility and batch uniformity.

The fully automated facility offered by the **CoolSafe Superior-Vial** models is further enhanced by the inclusion of a vacuum valve between the vacuum pump and the condenser, which allows for separate cooling of the condenser and the commencement of the drying cycle only to start when the condenser temperature is at the correct value. This both protects the vacuum pump and prevents premature starting of the freeze drying cycle and consequential sample/product loss.

Stoppering of the vials after completion of the drying process is facilitated by the Stoppering Device (where fitted) which is compressed-air actuated and a single push-button operation.

The chamber can accommodate up to 5 electrically heated shelves, with trays, giving a total area up to 0.65 m^2 . The number of vials that can be processed simultaneously is dependent on vial diameter, which determines the number per tray/shelf and by the height (with stopper in place) which determines the distance between the shelves, and consequently the number of shelves required.

For further information refer to the tables shown.

The air inlet is separately controlled allowing N_2 , HEPA-filtrated air or just vacuum before Stoppering.

Decontamination kit for VHP decontamination optional.



Computer Control & Data logging

This option provided by the Pro controller gives full remote control, data capture/storage, and full documentation, with connection to a Laptop or PC via a USB port.

The software package enables remote operation and data logging of the freeze drying parameters (time, temperature, pressure) and complete flexibility of control and data format presentation.

Chamber Vial Loading Capacity - with Stoppering

Vial mL/mm	16	22	24	30	30	42	52
Shelf area m ²	2	4	10	20	30	50	100
0.1	375	198	160	104	104	45	28
0.2	750	396	320	208	208	90	56
0.3	1125	594	480	312	312	135	84
0.4	1500	792	640	416	416	180	112
0.5	1875	980	800	520	520	225	140
0.6	2250	1162	960	624	624	270	167
0.7	2625	1450	1120	728	728	315	196
0.8	3000	1738	1280	832	832	360	224
0.9	3375	2026	1440	936	936	405	252



CoolSafe 95/55-80 Pro models

Offers an 80 litre condenser and a choice of either -55 °C or -95 °C condenser temperature, that accommodates all standard accessories from the CoolSafe accessory portfolio. Connection of MA 14 flask manifold or CCS500 or CCS500E large acrylic chambers, with or without electrically heated shelves, enables Bulk Freeze drying with high capacity and complete versatility and ease of operation.

The **CoolSafe Pro** is the ideal unit for routinely freeze drying large quantities of material, either in flasks or on shelves (with trays) or both. Minimum de-icing "down-times" with a high sample through-put can be assured due to the large, efficient, high performance condenser.

CoolSafe 95/55-80 Pro - Flexibility of Choice

- Choice of condenser -55 °C for eutectic formers or -95 °C for "glass" formers or samples containing organic solvents or acids
- Choice of configuration with Electrically heated top chambers that are mounted on top of the CoolSafe 90/55-80 Pro (requires ConFitCom)
- 5 x ¾" rubber valves for simultaneous flask drying or for connection of other CoolSafe chambers, see our full program of "add on" accessories and CoolSafe bench top models
- High capacity RZ/6 with oil mist elimination and anti-blow back valve, pressure 0.001 mbar

Features of Quality

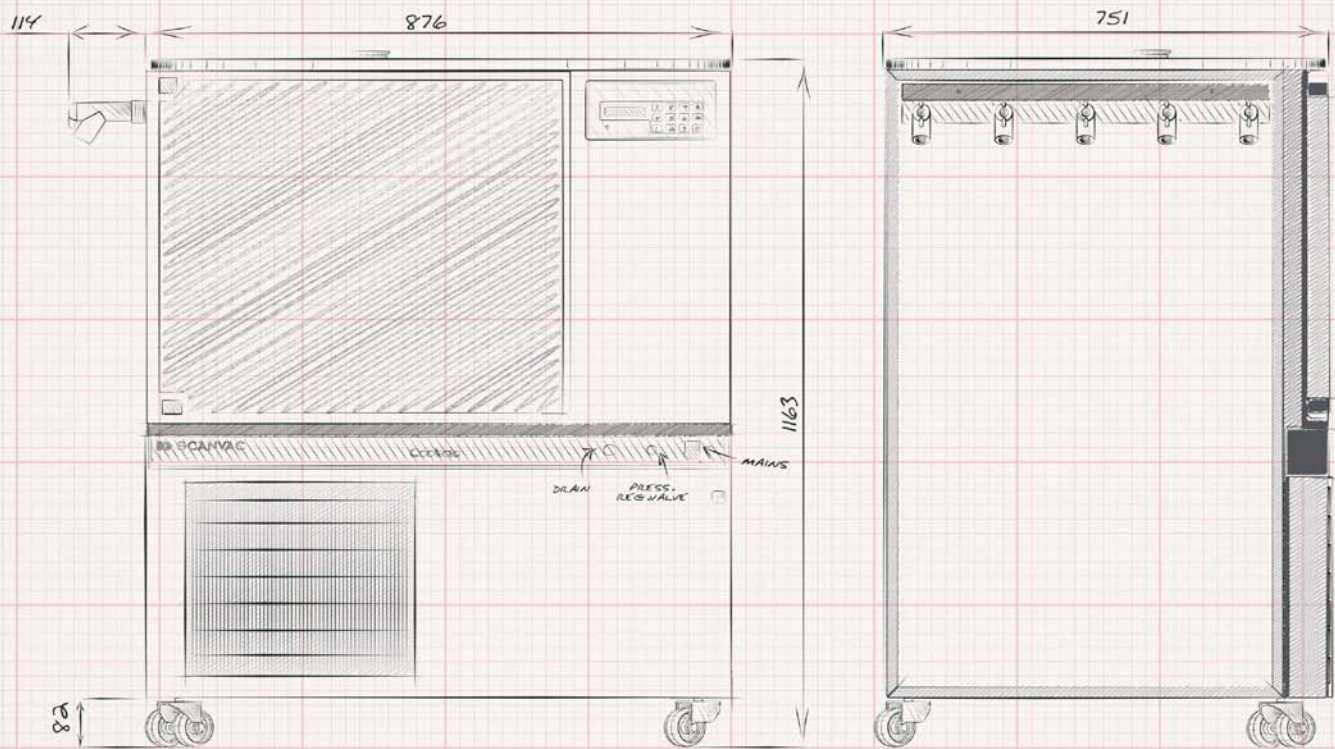
- Large capacity, seamless steel condenser, with external cooling coils and electric de-icing as standard
- Microprocessor Control and display of condenser temperature
- Condenser ice capacity of 10kg/24hours; total capacity of 40 kg
- Large condenser surface area for high uniform performance characteristics



CoolSafe 95/55-80 Superior with 14-port manifold together with heated shelves in condenser.

Accessories and Options

Accessories Chambers	Type	Description
7.001.001.882	Bulk chamber Superior	2 x El heated shelves 2 x 30 x 50 cm
7.001.001.881	Vial chamber Superior	2 x El heated shelves 2 x 26 x 50 cm
7.001.001.801	Shelf 3050 for Superior	Shelf 3050 Extra Electrical Shelves 30 x 50 cm Add max extra 3 shelves.
7.001.001.802	Tray 3050 for Superior	Tray 3050 Stainless steel tray 30 x 50 x 1.5 cm for convenient operation
7.001.001.883	Shelf 2650 for Superior	Shelf 2650 Extra Electrical Shelves 26 x 50 cm Add max extra 3 shelves
7.001.001.884	Tray 2650 for Superior	Tray 2650 Stainless steel tray 26 x 50 x 1.5 cm for convenient operation
7.001.300.180	Stoppering arrangement	Stoppering arrangement hydraulic for CS55/90 Advanced
7.001.300.885	Compressor up to 6 Bar	Compressor including reduction valve
Manifold	Type	Description
7.001.000.869	MA-14	Manifold for CS55 with 14 Quick seal Valves 3/4" for freeze-drying in flasks
7.001.000.899	MA-14 glass protection	support system avoiding glass breakage
7.001.000.862	MA-5	Side manifold for CS 55/90 5 Quick seal valves 3/4 inch
Top Chamber	Type	Description
7.001.500.085	CCS500	Acrylic Chamber Ø 500 mm internal height 480 mm with 3 st. steel shelves Ø 440 mm w/adjustable height (takes up to 10 shelves and trays)
7.001.500.185	Shelf500	Extra St. steel shelf for Ø 435 mm CCS500 chamber Takes up to 9
7.001.300.194	CCS500E	Acrylic Chamber Ø 500 mm active height 480 mm incl 2 el heated shelves Ø 440 mm w/adjustable height
7.001.300.994	Shelf500E	Extra St. steel shelf for Ø 435 mm CCS500E chamber Takes up to 5 shelves
7.001.300.093	ConKitHS	Connection kit for CS-HS versions and el-Heated chambers
7.001.500.285	Tray500	Extra St. steel tray Ø 435 mm x 35 mm for CCS500 chamber
7.001.500.879	G-valve	Gate valve
Controls	Type	Description
7.001.300.884	Preparation for P-sensor	Preparation for 1 P-sensor
7.001.300.084	P-sensor	P-sensor Product sensor for CS 55/90 Advanced/TopAdvanced and HeatVacAdv
7.001.300.096	Comp. Control/Logging	Software and connectors controls CS55/90 from computer incl. Store facility & PC
7.001.300.092	Pressure-Reg	Regulation of Pressure for CS55/90
7.001.300.874	DecontaminationVHP	Preparation for decontamination with VHP
Vacuum pumps	Type	Description
7.001.510.070	RZ 6	VacuBrand Vacuum Pump 6,0, 105 L/min, 6,0 m ³ /hour ultimate vacuum 0,0001 mbar with antisuck
7.001.201.169	RZ 9	Vacuum Pump 140 L/min, 8,6 m ³ /hour ultimate vacuum 0,0002 mbar
7.001.201.070	Oilmist	Oil-mist filter for RZ9
7.001.201.071	HN	Hose Nozzle for RZ9
7.001.500.072	Oilmist RZ 9	Oil-mist filter for RZ 9
7.001.500.073	Oilmist repl. RZ 9	Oil-mist Replacement filter for RZ 9
7.001.500.079	Oilmist repl RZ 2.5/6	Oil-mist Replacement filter for RZ 2.5/6
7.001.001.079	SVP-oil 1	ScanVac's own oil for low pressure and long life 1 litres
7.001.001.080	SVP-oil 5	ScanVac's own oil for low pressure and long life 5 litres
7.001.001.096	MPLow	VacuBrand Diaphramepump 37 L/min, 2,2 m ³ /hour ultimate vacuum 0,5 mbar
7.001.500.070	VHN	VacuBrand Hose Nozzle for RZ 2.5/6.0/MP2
7.001.201.369	RZ 21	Vacuum Pump 583 L/min, 21,0 m ³ /hour ultimate vacuum 0,0002 mbar
7.001.201.370	Oilmist	Oil-mist filter for RZ 21
7.001.201.371	HN	Hose Nozzle for RZ 21



Technical Specifications

CoolSafe Models	CS 55-80 Pro	CS 90-80 Pro	CS 90-80 Superior Bulk-1	CS 90-80 Superior Bulk-2	CS 90-80 Superior Vial
Shelf dimensions mm	0	0	300 x 500	300 x 500	260x500
Max Amount of build in shelves	0	0	5	9	5
Shelf area m ²	0	0	0.75	1.2	0.65
Condenser capacity litres	80	80	80	80	80
Ice Capacity kg / 24 hrs	10	10	10	10	10
Maximum capacity kg / 24 hrs	40	40	40	40	40
Condenser temperature lower than °C	-95 °C	-95 °C	-95 °C	-95 °C	-95 °C
Temperature Display °C	to -100 °C - +100 °C	to -100 °C - +100 °C	to -100 °C - +100 °C	to -100 °C - +100 °C	to -100 °C - +100 °C
Pressure Display	Yes	Yes	Yes	Yes	Yes
Vacuum regulation	Optional				
Vacuum Valve	Yes	Yes	Yes	Yes	Yes
Castors lockable	Included	Included	Included	Included	Included
Cabinet material	Powder Coated Steel	Powder Coated Steel	Powder Coated Steel	Powder Coated Steel	Powder Coated Steel
Condenser material	Seamless Stainless Steel 316 L				
Insulation mm	50	50	50	50	50
RS232/USB-port	Included	Included	Included	Included	Included
Refrigeration system	single	cascade	cascade	cascade	cascade
Noise Level	<53dBA	<53dBA	<53dBA	<53dBA	<53dBA
Power consumption max. kWatt	2.5	3.0	4.0	5.0	4.0
Vacuum Pump (option)	RZ 6 with oilmist eliminator	RZ 6 with oilmist eliminator	RZ 6 with oilmist eliminator	RZ 6 with oilmist eliminator	RZ 6 with oilmist eliminator
Pump capacity L/min - m ³ /hour	100 / 5,8	100 / 5,8	100 / 5,8	100 / 5,8	100 / 5,8
Ultimate vacuum mBa	0,001	0,001	0,001	0,001	0,001
Power requirements	220/240 v/50 Hz	220/240 v/50 Hz	220/240 v/50 Hz	220/240 v/50 Hz	220/240 v/50 Hz
Power requirements	3 x 400 v/50 Hz	3 x 400 v/50 Hz	3 x 400 v/50 Hz	3 x 400 v/50 Hz	3 x 400 v/50 Hz
Weight without vacuum pump Kg	250	260	350	400	500
Μείζονε λιθρονε ασπιου βρωσε κβ	520	580	320	400	200
ενοκε ιερηροασουε	3 x 400 Λ/20 Ηε	3 x 400 Λ/20 Ηε	3 x 400 Λ/20 Ηε	3 x 400 Λ/20 Ηε	3 x 400 Λ/20 Ηε



LaboGene™ is a Danish Company that specialises in the design, development, manufacture and sales of laboratory and industrial equipments in the fields of Clean Air & Laminar Flow, Vacuum & Cooling and Centrifugation.

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Clean Air & Laminar Flow

ScanLaf represents the best in Class II and laminar flow cabinets with the advantage of low energy consumption, digital control and ergonomic design.

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The Industrial **ScanLaf** program offers a range of Down Flow modules and enclosures for powder and animal handling as well Air showers and Glove boxes, all of which can be produced to Customers specifications. A truly unique bespoke portfolio!

Vacuum & Cooling

ScanVac epitomizes the best in Freeze Drying and Vacuum Concentration equipments and offers a wide range of bench or floor standing units with temperatures down to -110 °C.

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Together with accessories and components compatible with previous Danish produced models, **ScanVac** can offer continuity of supply, service, advice and assistance.

ScanCool the brand that describes a range of Ultra Freezers for sample storage offering a choice of Chest or Upright models from 100 to 600 litres capacity. Environmentally friendly and energy saving design concepts are standard features of all units in the ScanCool range.

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The **ChillSafe** range of cooling & cryogenic baths and circulators with capacities of 8 to 18 litres and temperatures from -30 °C to -90 °C completes the ScanCool offering.

Centrifugation

ScanSpeed, the name that defines quality centrifuges from **LaboGene**. Offering bench-top high and low speed models with or without refrigeration for today's discerning laboratory technician. Quality engineering with modern designs and features that exemplifies Danish craftsmanship.

Incubators & Environmental Testing

ScanCell-Caron, a range of CO2 Incubators & Environmental Chambers that bring a new dimension to Cell Culture and the Environmental Sciences.

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The ScanCell-Caron programme provides innovative designs, superior build quality and complete sample security and with over 30 years experience and expertise we offer today's scientists the best in Incubator and Environmental chamber technology available today.



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