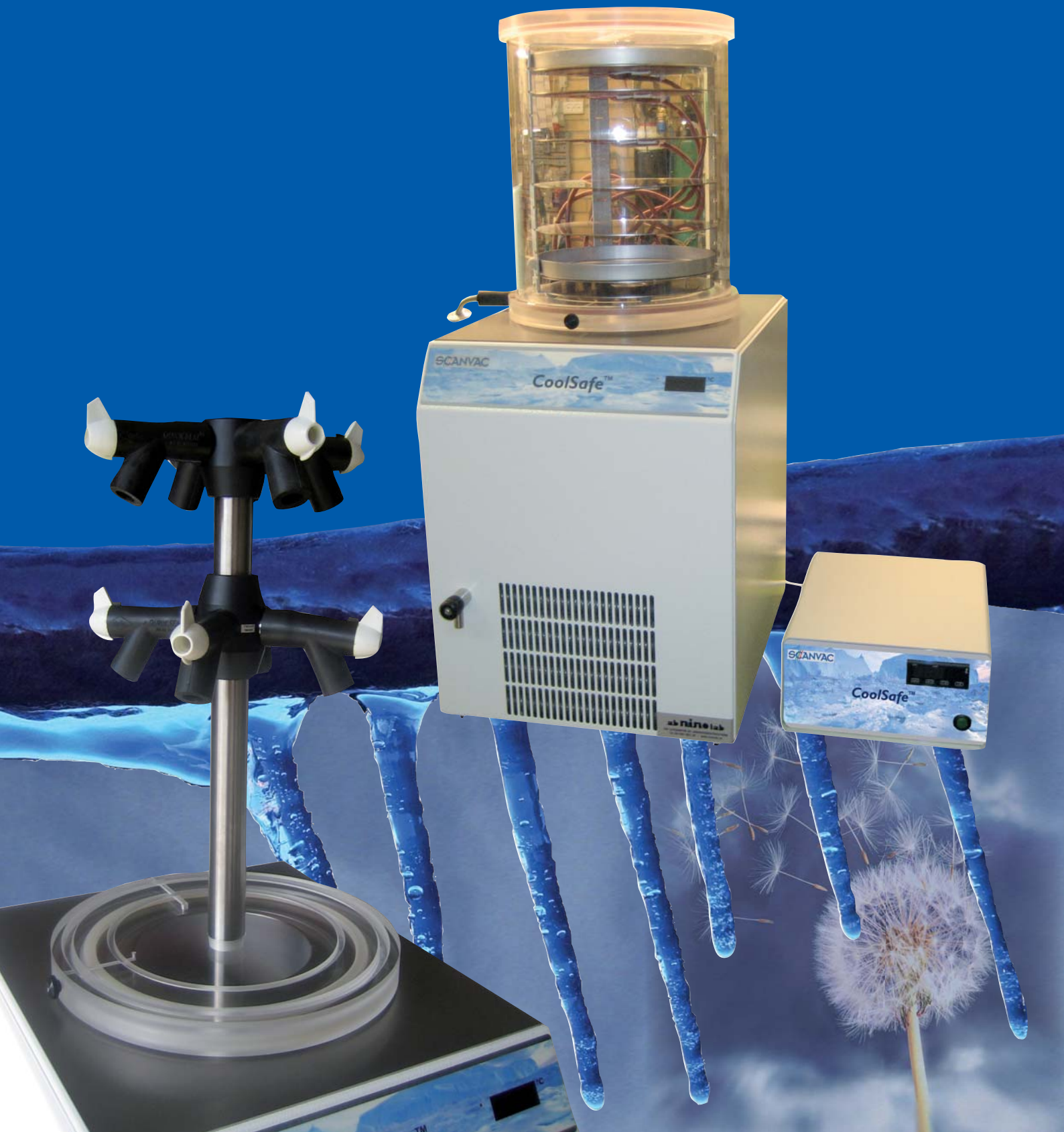
SCANVAC

Probably the best Bench-top Freeze Dryers in the world



About ScanLaf A/S

ScanLaf A/S is a Danish Company specializing in the development, production and sales of laboratory and industrial equipment within the technologies of:

Laminar Flow, Vacuum and Cooling.

All the employees have many years experience from previous employment with Heto-Holten A/S in Denmark and most of the products have been further developed, now offering the latest technology whilst still able to accept the accessories of older machines in the field.

ScanLaf represents Probably the best Class 2 and other laminar flow cabinets and ScanVac represents Probably the best freeze dryers, speed vacuum concentrators and cooling baths among others.

Industrial Laminar Flow:

Down flow modules, Recirculation downflow units for powder and animal handling, Air showers, Glove boxes and custom made solutions. We have an experienced service organization for after sales support as well as offering service solutions for your existing Heto-Holten equipment.

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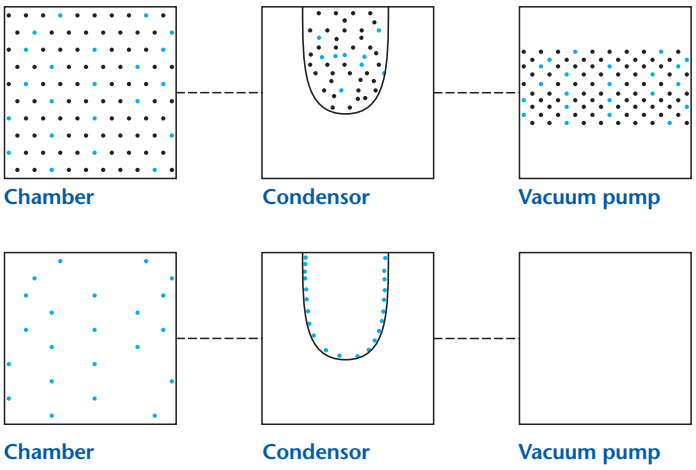
The freeze drying/vacuum concentration process

◆ **Pre-freeze step (Not necessary in Vacuum concentration)**

The Pre-freeze step occurs when the material temperature is taken from normal room temperature and pressures to a point below the freezing point of the sample. Any free non "bound" liquid and aqueous material contained within the sample moves from its liquid phase to a solid phase below the freezing point of the product. This is done by removal of energy from the material - freezing.

Typical aqueous solutions will be Eutectic forming, which means that there will be an increase in the concentration of the solution as the product temperature falls and water is frozen. At the so-called "Eutectic point" the liquid will suddenly transform into a solid state. Some solutions are Glass forming and do not have a sudden transformation from liquid to solid state. They just become more viscous as the product temperature falls. The higher the level of sugars, acids and organic solvents, the lower the freezing point.

◆ **Vacuum**



A vacuum source is necessary to allow the process of Freeze drying or vacuum concentration to take place more efficiently by removing the air and thus reducing the pressure in the system.

With Freeze drying, in order to start the removal of moisture in the process, the pressure surrounding the material has to be brought down to a value below the triple point value whilst still keeping the temperature of the product below the freezing point.

With vacuum concentration the state may still be liquid and the centrifugation force will keep the liquid in the tube preventing bubbling and bumping.

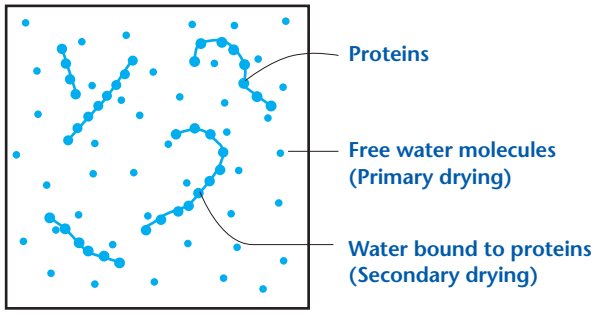
The condenser trap within a freeze drying system must always be brought down to a temperature at least 10 degrees below that of the material being dried. This is to create a sufficient pressure difference to allow sublimation to occur.

In vacuum concentration the condenser trap temperature must be as low as possible to be sure to trap all liquid before it reaches the vacuum pump.

◆ **Primary drying**

During the primary drying process of freeze drying, the solid water (ice) moves from the product at low temperature and pressure, flowing through the freeze drying system as vapour, by a process known as sublimation, to the condenser where it re-condenses back to ice. The energy for this process to occur is applied as heat to the product and the product water vapour pressure and temperature will be somewhere on the solid / vapour state transition line. In vacuum concentration the sample is normally not frozen, so this stage will be by evaporation rather than sublimation.

The energy needed will be the equivalent energy required to melt the ice and/or evaporate the liquid. The vapour will fill the freeze dryer/vacuum concentrator and eventually reach the Condenser trap. As the trap has a lower temperature, and hence lower water vapour pressure than the product, the water vapour will condense back to ice on the condenser surface. This stage is called the primary drying.



If too much heat is applied to the sample, such that sublimation takes place too rapidly, then the condenser may not be able to remove this energy and so the vapour will not condense fast enough. This can lead to a rise in the condenser surface temperature and the resultant vapour pressure increase in the freeze dryer may result in melting the product.

Product heating has to be optimized through experiment so that the capacity of the trap is not exceeded and so that the temperature of the product is not above the value that is known to destroy it.

The heating must still be fast enough to enable freeze drying/ vacuum concentration within a reasonable time.

◆ **Secondary drying**

After removal of moisture in the sublimation (or evaporation) step there will normally be some residual moisture in the product. This moisture is bound to the product in such a way that the moisture vapour pressure at a given temperature is much lower than the moisture vapour pressure in its free form.

The removal of moisture in this, the secondary drying phase, is done at high product temperature, because now the product will not lose its biological activity.

CoolSafe™
-55 °C and -110 °C, 4 litres Freeze Dryers

A range of large capacity, compact, low temperature freeze dryers and cooling traps offering faster drying speeds. Easy and maintenance free operations give the highest protection and safety to the operator, laboratory environment and vacuum pump.
The CoolSafe 55 offers the most economical choice when the freeze drying samples only contain water.
The CoolSafe 110 is the right choice if the samples contain small or larger amounts of organic solvents or acids, or if the freeze drying needs to be faster or the remaining moisture is difficult to remove.

High Performance

- 4 litres volume with a cooling capacity of 2.5 kg/hour allows faster drying of even larger volumes.
- Low temperatures, down to -110 °C, rapidly reduce the remaining moisture in the product to a minimum and rapidly traps both small and large amounts of water as well as a wide variety of acids and organic solvents.

Environmentally friendly

The low temperature and high capacity allows the trapping of even small amounts of acids and organic vapours thus preventing damage to vacuum and membrane pumps as well as protecting the laboratory environment. (The lower the temperature and the lower the vapour pressure the less chance of passing vapour through the condenser to the pump and the environment).

Convenience and Comfort

- Seamless stainless steel condenser – easy cleaning, long life, no leakage.
- Cooling outside the condenser increases lifetime and capture rate and allows fast deice
- Easy to use drain tap – simple cleaning operation after each run.
- Low noise level - quiet operation.
- Digital read out with alarm - unsupervised control with overload or malfunction warning.
- Compact design and operation - suitable for any laboratory bench, trolley or an electrically adjustable elevation stand.

Economical

- Low temperature and high capacity condensers - protect the vacuum pump saving oil, membranes, breakage and expensive chemical traps.
- Efficient insulation – saves energy.
- Seamless condenser design - saves need for glass traps
- Step start compressors - extends working life.

Specifications CoolSafe 110 and 55

Type	CoolSafe 110-4	CoolSafe 55-4
Cat. No.	7.001.000.115	7.001.000.060
Ultimate temperature:	-110 ˚C at 20 ˚C room temperature	-55 ˚C at 20 ˚C room temperature
Condenser dimension, mm:	162 × 180	162 × 180
Total volume, L:	4	4
Cabinet dimensions H×W×D, mm:	500 × 400 × 500	500 × 400 × 500
Insulation, cm:	9	9
Condenser capacity per 24 hours, kg:	2,5	2,5
Condenser capacity/total, kg:	3	3
Cooling media:	R507/R1150	R507
Power, V/Hz:	230/50, 115/60	230/50, 115/60
Power consumption, W:	400	200
Materials:	Cabinet polyester coated steel, Condenser stainless steel AISI 316	Cabinet polyester coated steel Condenser stainless steel AISI 316
Weight, kg:	55	40
Draintap:	Yes	Yes
Digitale temperature read-out:	Yes	Yes
Microprocssor control with alarms:	Yes	Yes
Start delay for the compressors:	Yes	Yes

Cat. No.	Code	Description
7.001.300.001	El-Deice	Electrical de-ice function for fast de-icing of the condenser
7.001.300.002	Teflon	Teflon coating of CoolSafe 110-4 when drying aggressive acids
7.001.000.066	4Castor	4 lockable castors for easy moving around
7.111.000.060	CS 55-4 system	Freeze dryer incl CS 55-4, Cspl, rotary vane pump, oil-mist filter all connections - Ready to use with your choice of chambers or manifolds
7.111.000.115	CS 110-4 system	Freeze dryer incl CS 110-4, Cspl, rotary vane pump, oil-mist filter all connections - Ready to use with your choice of chambers or manifolds
7.001.000.991	GlassIns	Glass insert for CoolSafe 55/110-4 including lid
7.001.000.990	GlassIns extra	Extra Glass insert for CoolSafe 55/110-4

CoolSafe™
-55 °C and -110 °C, 4 litres Freeze Dryers PRO

CoolSafe 55-4 Pro and CoolSafe 110-4 Pro have the same features as CoolSafe 55-4 and CoolSafe 110-4 and also come with additional built in digital readout and measurement of vacuum to 0,001 mBar for leakage and end dryness control, and USB-port for optional monitoring of freeze drying parameters.

CoolSafe Pro can easily be connected to El–Heated chamber CS300E for reproducible and faster freeze drying, programmable with up to 15 steps. It is possible to store 5 different programs. In addition vacuum regulation can be added to optimize the freeze drying rates.

Software is available to monitor all the parameters in Excel- format for full documentation.
In addition the results are shown on a scalable curve – for easy supervision of the process parameters.

Specifications CoolSafe 110 and 55

Type	CoolSafe 110-4 Pro	CoolSafe 55-4 Pro
Cat. No.	7.001.000.515	7.001.000.560
Ultimate temperature:	-110 ˚C at 20 ˚C room temperature	-55 ˚C at 20 ˚C room temperature
Condenser dimension, mm:	162 × 180	162 × 180
Total volume, L:	4	4
Cabinet dimensions H×W×D, mm:	500 × 400 × 500	500 × 400 × 500
Vacuum readout:	Atm. to 0,001 mBar	Atm. to 0,001 mBar
USB-port:	Yes	Yes
Insulation, cm:	9	9
Condenser capacity per 24 hours, kg:	2,5	2,5
Condenser capacity/total, kg:	3	3
Cooling media:	R507/R1150	R507
Power, V/Hz:	230/50, 115/60	230/50, 115/60
Power consumption, W:	400	200
Materials:	Cabinet polyester coated steel, Condenser stainless steel AISI 316	Cabinet polyester coated steel Condenser stainless steel AISI 316
Weight, kg:	55	40
Draintap:	Yes	Yes
Digitale temperature read-out:	Yes	Yes
Microprocssor control with alarms:	Yes	Yes
Start delay for the compressors:	Yes	Yes

7.111.000.560	CS 55-4 Pro	System Freeze dryer incl CS 55-4 Pro, ACpl, rotary vane pump, oil-mist filter all connections - Ready to use with your choice of chambers or manifolds
7.111.000.615	CS 110-4 Pro	System Freeze dryer incl CS 110-4 Pro, ACpl, rotary vane pump, oil-mist filter all connections - Ready to use with your choice of chambers or manifolds
7.001.300.001	Deice	Electrical Deice function f. fast de-icing of the condenser
7.001.300.002	Teflon	Teflon coating of CoolSafe 110-4 when drying aggressive acids
7.001.300.092	Pressure-Reg	Regulation of Pressure for CS-Pro and HeatVacCon
7.001.300.082	CCS300E	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height
7.001.300.083	CCS3004VE	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height & 4 x 3/4 inch rubber valves
7.001.300.184	CCS3008VE	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height & 8 x 3/4 inch rubber valves
7.001.300.084	P-sensor	P-sensor Product sensor for CS - Pro and HeatVacAdv
7.001.300.095	Data-logging	Software for Computer logging on PC. Logging in Excel with Scaleable Curves for HeatVac Advanced, HeatVacCon and CS-Pro
7.001.300.093	ConKitHS	Connection kit for CS-HS versions and El-Heated chambers
7.001.000.991	GlassIns	Glass insert for CoolSafe 55/110-4 including lid
7.001.000.990	GlassIns extra	Extra Glass insert for CoolSafe 55/110-4

CoolSafe™
-55 °C 9 litres Freeze Dryer

A large capacity freeze dryer for an increased drying speed, with safer and reproducible freeze drying.
The CoolSafe 55-9 is the correct and most economical choice for fast, versatile freeze drying of larger aqueous samples.

High Performance

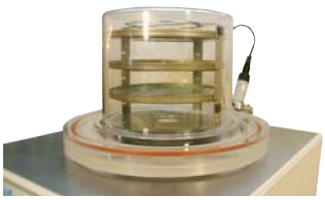
- Increased volume of 9 litres and cooling capacity of 4 kg/24 hour – dries larger volumes up 7 kg. This high capacity ensures reproducibility and reduces remaining sample moisture content faster.

Convenience and Comfort

- Seamless stainless steel condenser – easy cleaning, long life, no leakage.
- Easy to use drain tap – simple cleaning operation after each run.
- Low noise level – quiet operation.
- Digital read out with alarm – unsupervised control with overload or malfunction warning.
- Compact design and operation - suitable for any laboratory bench, trolley or an electrically adjustable elevation stand.

Economical

- Low temperature and high capacity condensers – protect the vacuum pump saving oil, membranes, breakage and expensive chemical traps.
- Efficient insulation – saves energy.
- Seamless condenser design – saves need for glass traps
- Step start compressors – extends working life.



Specifications CoolSafe 55 -9

Cat. No.	7.001.000.055
Ultimate temperature:	-55 °C at 20 °C room temperature
Condenser dimension, mm:	200 x 235
Total volume, L:	9
Cabinet dimensions H×W×D, mm:	500 x 400 x 500
Insulation, cm:	5
Condenser capacity/24timer, kg:	4
Condenser capacity/total, kg:	7
Cooling media:	R507
Power, V/Hz:	230/50, 115/60
Power consumption, W:	400
Materials:	Cabinet polyester coated steel, Condenser stainless steel AISI 316
Weight, kg:	45
Draintap:	Yes
Digital temperature read-out:	Yes
Microprocssor control with alarms:	Yes
Start delay for the compressors:	Yes

Prefreeze and freezedrying all in one

- By using the CS200 rack – the condenser can be used for Prefreezing of the samples –thereafter the pre-frozen sample can be placed directly on the AC-pl for freeze drying to take place
- -55° C low temperature pre-freeze and freeze-drying all in one.

Cat. No.	Code	Description
7.001.300.001	El-Deice	Electrical de-ice function for fast de-icing of the condenser
7.001.000.066	4Castor	4 lockable castors for easy moving around
7.111.000.055	CS 55-9 system	Freeze dryer incl CS 55-4, Cspl, rotary vane pump, oil-mist filter, all connections Ready to use with your choice of chambers or manifold

CoolSafe™
-55 °C 9 litres Freeze Dryer Pro

CoolSafe 55-9 Pro has the same features as CoolSafe 55-9 and also comes with additional built in digital readout and measurement of vacuum to 0,001 mBar for leakage and end dryness control, and USB-port for optional monitoring of freeze drying parameters.

CoolSafe Pro can easily be connected to El–Heated chamber CS300E for reproducible and faster freeze drying, programmable with up to 15 steps. It is possible to store 5 different programs. In addition vacuum regulation can be added to optimize the freeze drying rates.

Specifications CoolSafe 55-9 Pro

Cat. No.	7.001.000.555
Ultimate temperature:	-55 °C at 20 °C room temperature
Condenser dimension, mm:	200 × 200
Total volume, L:	9
Cabinet dimensions H×W×D, mm:	530 × 400 × 500
Vacuum readout:	Atm. to 0,001 mBar
USB-port:	Yes
Insulation, cm:	9
Condenser capacity/24timer, kg:	4
Condenser capacity/total, kg:	7
Cooling media:	R507
Power, V/Hz:	230/50, 115/60
Power consumption, W:	400
Materials:	Cabinet polyester coated steel, Condenser stainless steel AISI 316
Weight, kg:	55
Draintap:	Yes
Digital temperature read-out:	Yes
Microprocssor control with alarms:	Yes
Start delay for the compressors:	Yes

Software is available to monitor all the parameters in Excel-format for full documentation.
In addition the results are shown on a scalable curve – for easy supervision of the process parameters.

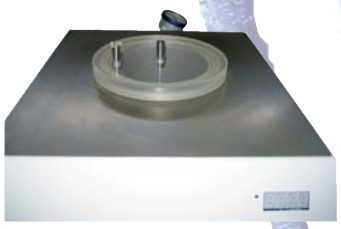
7.111.000.555	CS 55-9 Pro	System Freeze dryer incl CS 55-9 Pro, ACpl, rotary vane pump, oil-mist filter all connections - Ready to use with your choice of chambers or manifolds
7.001.300.001	Deice	Electrical Deice function f. fast de-icing of the condenser
7.001.300.002	Teflon	Teflon coating of CoolSafe 110-4 when drying aggressive acids
7.001.300.092	Pressure-Reg	Regulation of Pressure for CS-Pro and HeatVacCon
7.001.300.082	CCS300E	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height
7.001.300.083	CCS3004VE	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height & 4 x 3/4 inch rubber valves
7.001.300.184	CCS3008VE	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height & 8 x 3/4 inch rubber valves
7.001.300.084	P-sensor	P-sensor Product sensor for CS - Pro and HeatVacAdv
7.001.300.095	Data-logging	Software for Computer logging on PC. Logging in Excel with Scaleable Curves for HeatVac Advanced, HeatVacCon and CS-Pro
7.001.300.093	ConKitHS	Connection kit for CS-HS versions and El-Heated chambers

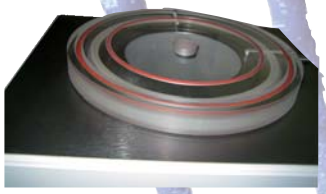
Unheated chambers and manifolds

Acrylic plate for all chambers and manifolds

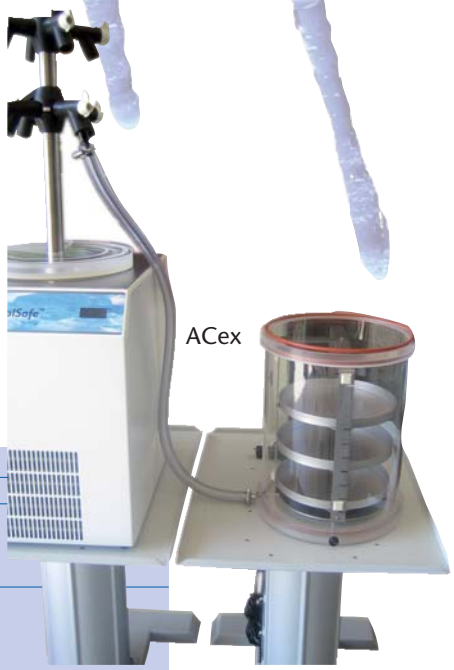
When choosing a chamber also choose the correct adaptor plate to ensure the chamber, vacuum centrifuge and manifold correctly fit onto the CoolSafe.
For freeze drying : The strong acrylic plate (ACpl) includes a connector to the vacuum pump, vacuum valve and an adjustable vacuum release.
Suitable for all chambers and manifolds with a vacuum gasket sized to fit all chambers
For use as a cooling trap: The strong acrylic lid (CTpl) includes two separate pipes for the vacuum pump, and e.g. the vacuum centrifuge.

CTpl





ACpl

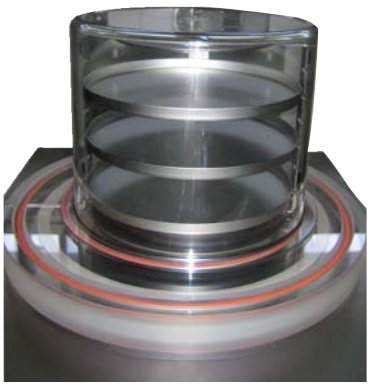


ACex

Cat. No.	Code	Description
7.001.000.061	CTpl	Cooling trap plate with 2 pipes
7.001.100.061	ACpl	Acrylic plate base for use on top on CoolSafe. Includes connectionfor vacuum pump and vacuum release. Takes both M4 Basic, AC 200 and 300 chambers
7.001.200.061	ACex	Acrylic plate base for use on bench next to CoolSafe includes connection for vacuum pump and vacuum release. Takes both AC 200 and 300 chambers.

Chamber CCS200

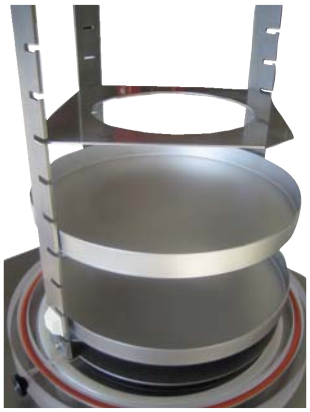
Compact, strong acrylic chamber system holding up to 6 trays with individual height adjustment.
Allows sample pre-freezing separately in the trays, or as the whole rack in a freezer.
Up to 0.16m^2 product area with 6 trays Variable inter-shelf height from 210 mm with one tray to 30 mm with 6 trays.
Tray dimension: 180 mm Ø × 10 mm deep made of high grade 316 L Stainless steel.
Chamber dimensions: 210 mm H × 200 mm Ø
Materials: AISI 316 Stainless steel rack, shelf and tray. Acrylic chamber, rubber gasket for acrylic plate.



Cat. No.	Code	Description
7.001.000.064	CCS200	Acrylic chamber with rack, 2 shelves, 2 trays and gasket.
7.001.000.164	Shelf200	Extra shelf for mounting extra product tray.
7.001.000.264	Tray200	Extra product tray: 180 mm Ø x 10 mm deep.

Chamber CCS300

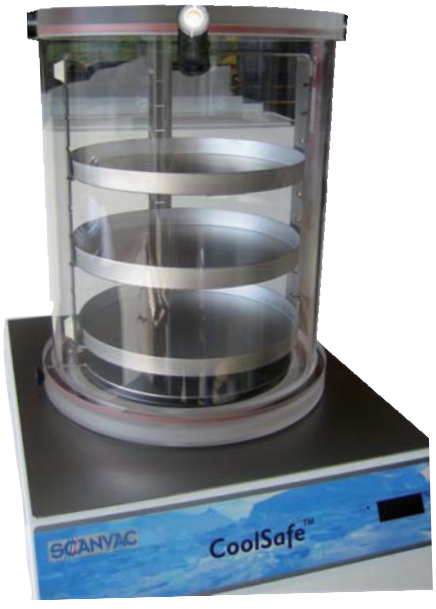
Large, strong acrylic freeze drying chamber holding up to 10 trays with individual height adjustment.
Allows sample pre-freezing separately in the trays.
Up to 0.5 m^2 product area with 10 trays, Variable inter-shelf height from 350 mm with one tray to 35 mm with 10 trays.
Tray dimensions: Ø250 mm × 20 mm deep, made of high grade 316 L stainless steel.
Chamber dimensions: 350 mm H × Ø300 mm.
Materials: AISI 316 Stainless steel rack, shelf and tray. Acrylic chamber, rubber gasket for acrylic plate.



Cat. No.	Code	Description
7.001.000.085	CCS300	Acrylic chamber with rack, 3 stainless steel shelves 3 trays and gasket.
7.001.000.185	Shelf300	Extra shelf for mounting extra product tray.
7.001.000.285	Tray300	Extra product tray: Ø250 mm × 20 mm deep

Chamber CCS300/4 Manifold and CCS300/8 Manifold

Same as CCS300 but with 4 x ¾ inch or 8 x ¾ inch rubber valves on top to allow attachment of other freeze drying accessories.
Chamber dimensions: 350 mm H × Ø300 mm. Takes up to 10 shelves.
Materials: AISI 316 Stainless steel rack, shelf and tray.
Acrylic chamber, gasket for acrylic plate.
4 x ¾ inch or 8 x ¾ inch rubber rubber valves.



Cat. No.	Code	Description
7.001.000.086	CCS300 4V	Acrylic chamber with rack, 3 st. steel shelves, gasket and 4 rubber valves
7.001.000.087	CCS300 8V	Acrylic chamber with rack, 3 st. steel shelves, gasket and 8 rubber valves
7.001.000.185	Shelf300	Extra shelf for mounting extra product tray
7.001.000.285	Tray300	Extra product tray: Ø250 mm x 20 mm deep

4Tree Manifold

Strong, easily accessible, manifold tree with ¾ inch rubber valves. The system can be extended with an additional 4Tree manifold to the height and number of valves required.
The acrylic lid acts as a drip tray.
The 4Tree Manifold can also be used for connection of up to 4 self-standing chambers e.g. ACex or vacuum concentrators.

Cat. No.	Code	Description
7.001.000.062	M4Basic	4 × ¾ inch Manifold, 40 cm high
7.001.000.063	M4Ext	4 × ¾ inch Manifold, 20 cm high for extension of M4Basic

Cones for Manifold drying

Aluminium cones for connection of freeze-drying flasks to manifold tree with ¾ inch rubber valves. Includes 2 silicone tightening rings and one silicone rubber for safe flask handling, per cone.

Cat. No.	Code	Description
7.001.000.072	C29/32	Aluminium cones for fitting glass flasks of 29/32 mm neck size.
7.001.000.073	C32/35	Aluminium cones for fitting glass flasks of 32/35 mm neck size.
7.001.000.074	C26/29	Aluminium cones for fitting glass flasks of 24/29 mm neck size.

Freeze drying glass flasks as chambers or for shell drying

Thick-walled strong glass flasks with vacuum tight, easy opening, rubber lid may be used either as chambers or for shell freeze drying. Available in sizes from 150 ml to 1200 ml. The glass flasks allow good heat transference from the room to the sample for the freeze drying process and are easily attached to ¾ inch rubber valves by a stainless steel connector included with the flask.

Cat. no	Code	Description
7.001.200.100	Flask150	Freeze drying flask/chamber 150 ml with rubber lid for connection to 3/4 inch rubber valves
7.001.200.101	Flask300	Freeze drying flask/chamber 300 ml with rubber lid and stainless steel connector for connection to 3/4 inch rubber valves
7.001.200.102	Flask600	Freeze drying flask/chamber 600 ml with rubber lid and stainless steel connector for connection to 3/4 inch rubber valves
7.001.200.103	Flask1200	Freeze drying flask/chamber 1200 ml with rubber lid and stainless steel connector for connection to 3/4 inch rubber valves

Freeze drying chambers with electrical heating

During normal freeze drying in chambers and flasks without electrical heating, the heat energy for the freeze drying process is supplied in the form of radiation from heat sources within the room such as lights etc. This often leads to non-uniform freeze drying, especially at night when lights are turned off and the heat source reduced, allowing the process to slow down considerably.
If, however, the glass flasks and chambers are fitted with electrically heated shelves then by applying heat to the shelves during the freeze drying process, faster, more uniform and reproducible results can be achieved, with increased sample recovery rates.

ScanVac offers 2 different Heat controller systems: HeatVac Basic, HeatVac Advanced and HeatVacCon

HeatVac Basic

HeatVac Basic provides heat transport to the shelves by controlling the temperature of one shelf providing a fixed temperature to all shelves at one time.
Takes up to 6 electrically heated shelves.

It is programmable in one step with digital readout of the shelf temperature. It is easy to use and
provides fast and reproducible freeze drying.

HeatVac Advanced

HeatVac Advanced provides accurate control of heat transfer to the shelves by controlling each shelf temperature individually ensuring the highest uniformity and reproducibility is maintained.
The process may be optimised by allowing several steps to be programmed during both the primary and secondary drying stages.
Takes up to 6 electrically heated shelves and one product sensor
Data can be recorded as an option.

HeatVac Con

HeatVac Control includes Pt 100 sensor for monitoring Condenser temperature, readout and measurement of vacuum level Pirani type to 0,001 mBar. Optinal USB port for data logging and computer communication. Optional possibility for pressure regulation

7.001.300.080	HeatVacAdv	HeatController for up to 6 El-shelves. Auto programmable allows 1 product sensor
7.001.300.081	HeatVacBas	HeatController for up to 6 El-shelves. Manual, digital readout of temperature
7.001.300.091	HeatVacCon	Control of Condensor temp.(-115° C to 99° C) and vacuum (Pirani type to 0.0001mBar)
7.001.300.093	ConKitHS	Connection kit for CS-HS versions and El-Heated chambers
7.001.300.092	Pressure-Reg	Regulation of Pressure for HeatVacCon
7.001.300.084	P-sensor	P-sensor Product sensor for CSE chambers with Advanced and HeatVacAdv
7.001.300.085	USB	USB output for documentation for HeatVacAdv, HeatVacCon and CS-Pro
7.001.300.095	Data-logging	Software for Computer logging on PC logging in Excel with Scaleable Curves for HeatVacAdv, HeatVacCon and CS-Pro

Chamber CCS300E and CCS3004VE

Chamber CCS300E is a large, strong acrylic freeze drying chamber holding up to 6 trays with individual height adjustment. Allows sample pre-freezing separately in the trays. Up to 0.5 m² product area with 6 trays, Variable inter-shelf height from 480 mm with one tray to 70 mm with 6 trays. All shelves are removable for cleaning / product transfer. The shelves are supplied with stainless steel trays allowing more convenient sample transportation and pre-freeze options.

CCS3004VE or CCS3008VE are additionally supplied with 4 x ¾ or 8 x ¾ inch valve or manifold for drying flasks or ampoules simultaneously.
All shelves are removable for cleaning / product transfer. In addition, the shelves are supplied with stainless steel trays allowing more convenient sample transportation and pre-freeze options.

Tray dimensions: Ø250 mm × 20 mm deep, made of high grade 316 L stainless steel.
Chamber dimensions: 480 mm H × Ø300 mm.
Materials: AISI 316 Stainless steel rack, shelf and tray. Acrylic chamber, rubber gasket for acrylic plate.

Cat. No.	Code	Description
7.001.300.082	CCS300E	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height
7.001.300.083	CCS3004VE	Acrylic Chamber Ø 300 mm with 6 st. steel shelves Ø 250 mm w/adjustable height & 4 x 3/4 inch rubber valves
7.001.300.084	CCS3008VE	Acrylic Chamber Ø 300 mm with 8 st. steel shelves Ø 250 mm w/adjustable height & 6 x 3/4 inch rubber valves
7.001.000.285	Tray300	Extra St. steel tray Ø 250 mm x 15 mm for CCS300 chamber

Our other Products

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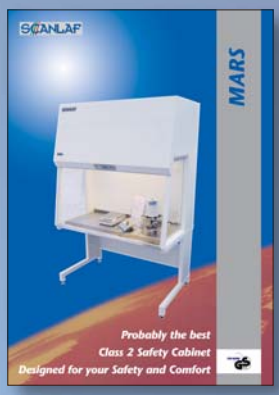

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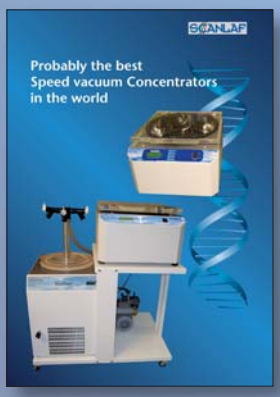

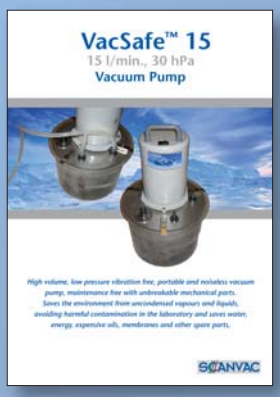

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