HANIL SCIENTIFIC CONCENTRATORS

For your sample concentration

hanil

Centrifugal Vacuum Concentrators

HyperVAC™

HyperVAC is a centrifugal vacuum concentrator as general-purpose laboratory benchtop equipment.
HyperVAC offers rapid, environmental friendly and efficient vacuum concentration or drying of samples like DNA/RNA, nucleotides, proteins and other liquid or wet samples with ease and reproducibility that maintain sample integrity. HyperVAC is ideal for routine work with your samples.

Features

- Modular configurations of centrifugal part, cold trapping, and vacuum pump for versatile applications
- Available for volatile chemical solvents by accomodating with water pump, diaphram pump or oil pump
- Accommodate a wide range of sample containers
  : 0.5, 2.0, 15, 50 mL tubes and microplates
- Automatic control and digital reading of TIME, TEMP and VAC
- Efficient concentration by equipped with an ice-cold trapping or a cooling trap, HyperCOOL (-55℃/-110℃)

Applications

- Nucleic acids (DNA/RNA) concentration
- HPLC, PCR, gel extraction, isolation, purification and concentration from solid phase extraction to solvent removal
- Combinatorial chemistry

Centrifugal Vacuum Concentration

The solvent removal is an essential process for the wide range of applications in genomics, proteomics, biochemistry, pharmaceutical study and analytical chemistry. The energy, as heat is applied during solvent removal process, so that the liquid is evaporated to gas. The boiling point of solvent can be decreased by applying vacuum pressure, which enables liquid vaporization at lower temperature than it's boiling temperature. Also decreased boiling points and centrifugal force give benefit to minimize boiling and bumping of solvent, prevent cross contamination and sample loss. HyperVac generates heat up to 80℃, accommodating with vacuum pump and cold traps provides enhanced evaporation of solvent and improved sample purity.

Vapor Pressure Lowering

$P=XP^0$

P = Vapor pressure of the solution

X = Mole fraction of the solvent

P^0= Vapor pressure of the pure solvent

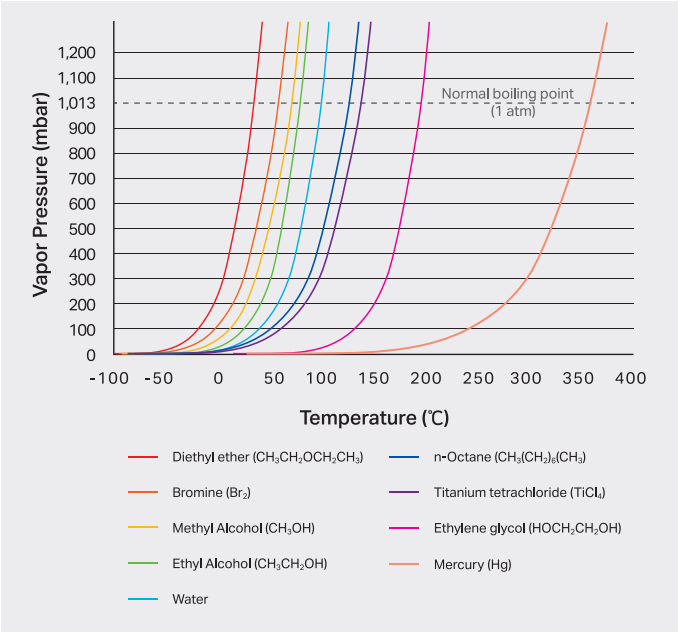


Figure 1. Vapor Pressure Diagram

Technical Specifications

		HyperVAC-LITE	HyperVAC-MAX
Max. RPM		2,000	
Max. Capacity	**Fixed Angle**	120 x 1.5/2.0 mL microtubes or 48 x 1.5/2.0 mL + 76 x 0.5 mL microtubes	200 x 1.5/2.0 mL microtubes 24 x 30 mL
	Swing-out	2 loadings of MTP	4 loadings of MTP or DWP
Auto Start / Stop of Vacuum		Yes	
Chamber Heating Temp. Range		R.T ~ 80°C	
Vacuum Pressure (mbar)		1 ~ 1,013	
Operating Time		< 23 hr 59 min or continuous, Default value: 0 h 0 m (continuous)	
Weight (kg)		22.5 (without rotor)	37 (without rotor)
Power Requirement (Centrifuge, VA)		350	700
Power supply (V/Hz)		230 V, 50 Hz (AC 220-230 V, 50/60 Hz; 110 V optional)	
Centrifuge Dimension (w x d x h, mm)		375 x 445 x 252	475 x 560 x 350
Cat. No.		Hyper-VC2124	Hyper-VC2200

Freeze Dryer and Cooling Trap

HyperCOOL™

HyperCOOL is a lab scale freeze dryer using the lyophilization phenomena. HyperCOOL is designed for safety, robustness and convenience for the successful freeze drying and cold trapping. It is suitable for drying of aqueous products, various solvents and products with a low freezing point.
HyperCOOL with stylish, modern and unique design will help you enjoy your daily laboratory work to the fullest.

Features

- Provide wide solvent coverage by dropping temperature down to -110℃
- HyperCOOL by itself, when equipped with manifolds or chambers, becomes a versatile freeze dryer
- The compatible vacuum rotary vane pump generates vacuum down inside the chamber
- Automatic De-Vac and De-Ice functions installed
- Magnet embedded front cover of the condenser for very convenient cleaning
- Extended applications for concentrating wider range or larger volume of solvents

Applications

- Pharmaceutical study and production
- Research and production of vaccine and antidote
- Drying and preservation of plants, food and etc.
- Archaeological study

Freeze Drying

The freeze drying, also known as lyophilization is dehydration technique through sublimation process, the shift from the solid directly into the gas without liquid phase. The materials must be frozen completely to remain as solid state during sublimation process. Additionally, applying vacuum enables lower the pressure below triple point, which can avoid the liquid phase. The freeze drying technique is used in various applications in food industry, pharmaceutical and biotechnology field and other industrial areas. HyperCOOL system allows complete removal of residual moisture.

Freezing Point Depression

$\Delta T = iK_f m$

ΔT = Decrease in solution freezing point

K_f = Freezing point depression constant for the solvent

m= Molality

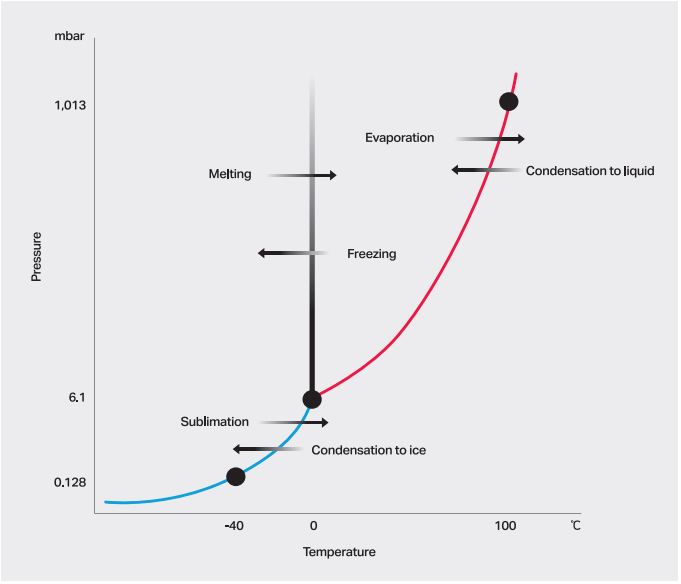
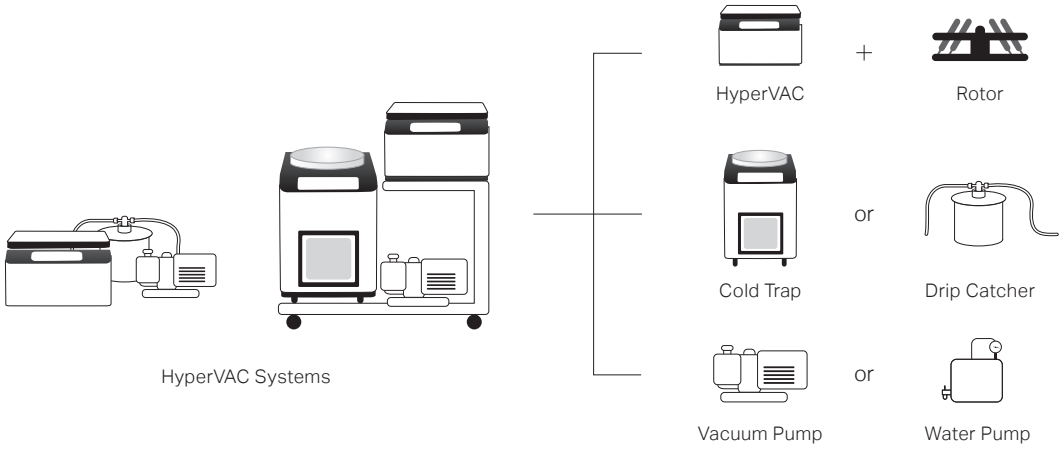


Figure 2. Typical Phase Diagram of Water

Technical Specifications

	HyperCOOL HC3055	HyperCOOL HC3110	HyperCOOL HC8080
Ultimate Chamber Temp (at RT) (°C)	-55	-110	-80
Chamber Volume (L)	4		25
Trap (Chamber) Size (Ø x L)	165 x 202		305 x 355
ICE Condensing Capacity (kg)	3		8
Digital Readout	Temperature, Time		Time, Program, Temperature, Vacuum Pressure
Function	KEYLOCK, DEFROST, VACUUM, TIME		COOLING, VACUUM
Power Requirement (Resting, VA)	642	819	1,500
Dimension (W x D x H, mm)	400 x 660 x 570		710 x 610 x 960
Weight (kg)	58	72	195
Power supply	230 V, 50 Hz (AC 220-230 V, 50/60 Hz; 110 V optional)		
Cat. No.	Hyper-HC3055	Hyper-HC3110	Hyper-HC8080

System Diagram of HyperVAC

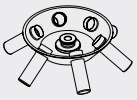


Rotors for HyperVAC-LITE

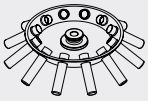
HRV-m0.5/2.0-124
48 x 1.5/2.0 mL
+ 76 x 0.5 mL

HRV-m2.0-120
120 x 1.5/2.0 mL

HRV-50-6
Incl. 6 ea x HLV-50
6 x 50 mL (conical)

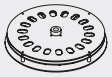


HRV-15-12
Incl. 12 ea x HLV-15
12 x 15 mL



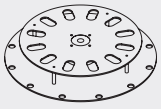
HRV-mw-2
2 loadings of MTP

HRV-10-18
18 x 10 mL vial tube



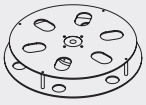
HRV-10-32
32 x 10 mL

HRV-15c-12
12 x 15 mL conical



HRV-20-12
12 x 20 mL vial tube

HRV-50c-6
6 x 50 mL conical

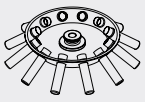


Rotors for HyperVAC-MAX

HRV-m2.0-200
200 x 1.5/2.0 mL

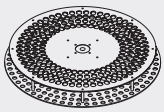
HRV-15-48
Incl. 48 ea x HLV-15
48 x 15 mL

HRV-50-12
Incl. 12 ea x HLV-50
12 x 50 mL (conical)



HRV-mw-4
4 loadings of MTP/DWP

HRV-5-192
192 x 5 mL

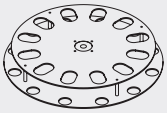


HRV-8-60
60 x 8 mL vial tube

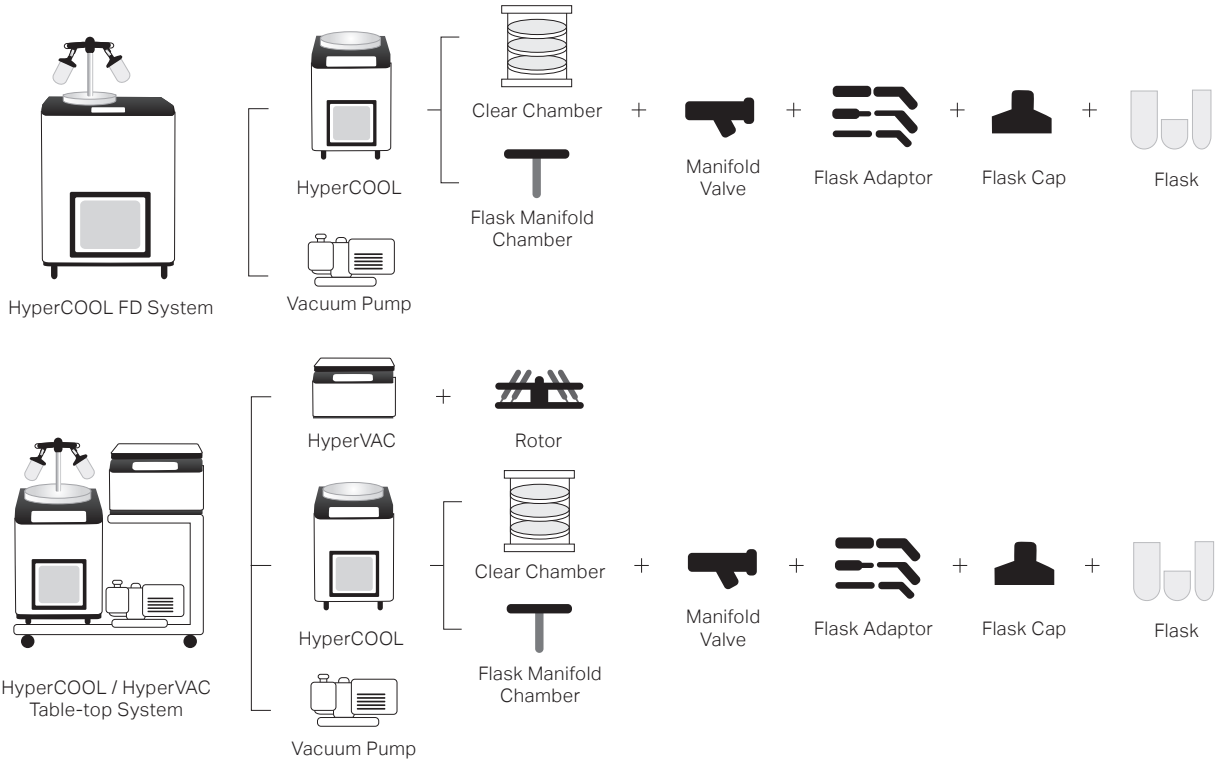
HRV-15c-24
24 x 15 mL conical

HRV-30-24
24 x 30 mL vial tube

HRV-50c-12
12 x 50 mL conical



System Diagram of HyperCOOL



Cover Plates for HyperCOOL

HHC-CPP
HC3055, HC3110 Trap Plate for Connection Vacuum Hose to Vacuum Concentrator

HHC-CPB
HC3055, HC3110 Acrylic Base for Manifold or Chamber

HHC-CPM
HC3055, HC3110 Acrylic Base for HHC-MFB-8V

HHC-CPP(8)
HC8080 Trap Plate for Connection Vacuum Hose to Vacuum Concentrator

HHC-CPB(8)
HC8080 Acrylic Base for Manifold or Chamber

HHC-CPM(8)
HC8080 Acrylic Base for HHC-MFB-8V

Manifolds for HyperCOOL

HHC-MFB-4V
Incl. 4 rubber valves on a stainless steel bar, 30 cm

HHC-MFB-6V
Incl. 6 rubber valves on a stainless steel bar, 30 cm

HHC-MFE-4V
for extension
Incl. 4 rubber valves on a stainless steel bar, 20 cm

HHC-MFE-6V
for extension
Incl. 6 rubber valves on a stainless steel bar, 20 cm

HHC-MFB-8V
Incl. 8 rubber valves on a stainless steel bar, 30 cm

Chambers and Racks for HyperCOOL

HHC-CH30P
Acrylic Chamber Trunk and Plain Top, ø30 cm, height 40 cm

HHC-CH30-4V
Acrylic Chamber Trunk and Top with 4 rubber valves, ø30 cm, height 40 cm

HHC-CR25
Stainless Steel Rack with 3 sets of shelves and trays, ø25cm (Trays can be inserted up to 5)

HHC-CR-TS
A Set of a Tray and a Shelve

HHC-CH30-8V
Acrylic Chamber Trunk and Top with 8 Rubber Valves, ø30 cm, height 40 cm

FD Glass Flasks

FD2009	Freeze Drying Glass Flask 40 mL, Ø45 mm
FD2010	Freeze Drying Glass Flask 80 mL, Ø45 mm
FD2011	Freeze Drying Glass Flask 120 mL, Ø45 mm
FD2012	Freeze Drying Glass Flask 150 mL, Ø45 mm
FD2013	Freeze Drying Glass Flask 300 mL, Ø45 mm
FD2013-1	Freeze Drying Glass Flask 300 mL, Ø70 mm
FD2014	Freeze Drying Glass Flask 600 mL, Ø70 mm
FD2015	Freeze Drying Glass Flask 900 mL, Ø70 mm
FD2016	Freeze Drying Glass Flask 1,200 mL, Ø70 mm
FD2017	Freeze Drying Glass Flask 2,000 mL, Ø70 mm

Sample Separation

Laboratory Centrifuges

Industrial Tubular Centrifuge

Sample Concentration

Centrifugal Vacuum Concentrators

Freeze Dryers

Sample Culture

Laboratory Fermentor

Photo Bioreactor

CO_2 Incubator

Sample Storage

Upright Type Deep Freezers

Chest Type Deep Freezers

hanil
since 1958

HANIL SCIENTIFIC INC.
16 Arayukro, Gimpo 10136, Rep. of KOREA
T. +82-2-3472-0727 | F. +82-31-985-9158
sales@ihanil.com | techsupport@ihanil.com
www.ihanil.com

DISTRIBUTION

018HS04A