



Concentrator

Hyper Series

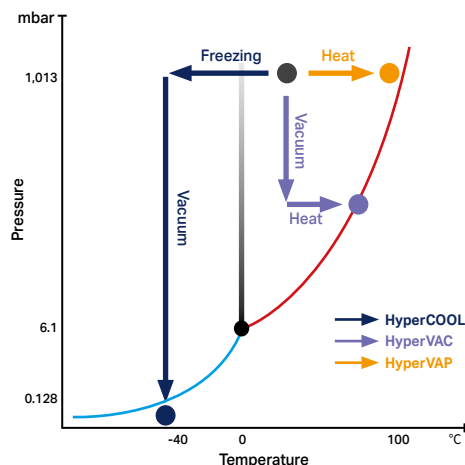
Practical Solutions for Sample Concentration and Preservation

Hyper Series

Practical Solutions for Sample Concentration and Preservation

At Hanil Scientific, we take pride in offering a versatile range of laboratory instruments HyperCOOL, HyperVAC, and HyperVAP designed to meet diverse scientific needs with precision and efficiency. Whether it involves the preservation of samples for long term storage, concentration of temperature-sensitive samples, or rapid concentration of liquid solutions, our instruments are engineered to deliver reliable performance under demanding laboratory conditions.

Hanil Scientific Concentrators are CE certified and manufactured in an ISO 9001 and ISO 13485 certified facility, ensuring adherence to the highest standards of quality, safety, and durability. This commitment to excellence reflects our dedication to producing quality, reliable, and good-value lab instruments.



HyperCOOL **FREEZING**

For long-term storage and preservation.

The HyperCOOL, freeze dryer (lyophilizer) is a dependable laboratory instrument designed for the effective removal of moisture from a pre-frozen samples by applying a deep vacuum to convert the frozen water molecules directly into vapor, bypassing the liquid phase. This process ensures complete drying while preserving the structure and quality of the drying sample. The system operates at ultra-low temperatures, ranging from -55°C or -110°C, making it suitable for a wide variety of samples, including biological materials, aqueous products, and solvents with low freezing points.

The HyperCOOL is a practical solution for laboratories needing reliable sample preservation. It serves as a solution for applications in biotechnology, food preservation, environmental science, and research, ensuring samples remain stable and ready for long-term storage or further analysis.



HyperVAC **BOILING**

For concentration of temperature-sensitive liquid samples.

The HyperVAC, centrifugal vacuum concentrator is a reliable laboratory instrument designed for the efficient evaporation of temperature-sensitive liquid samples. By lowering the boiling point of solvents through vacuum conditions, it minimizes thermal degradation and preserves the integrity of temperaturesensitive components. The integrated heating system controls sample temperatures from room temperature to 65°C, while the rotor operates up to 2,000 RPM to prevent bumping and crosscontamination, ensuring stable and reproducible results.

This combination of vacuum, controlled heating, and centrifugal force enables the simultaneous evaporation of multiple samples in a single run, enhancing laboratory efficiency. The HyperVAC serves as a solution for routine applications involving DNA, RNA, proteins, and other biochemical substances.



HyperVAP **BLOWING**

For rapid concentration of liquid samples.

The HyperVAP nitrogen blowing concentrator is designed for the rapid evaporation of solvents from multiple samples. Using a gentle stream of nitrogen gas in a helical shape, it accelerates evaporation by blowing directly onto the sample surface. The system can process up to 32 samples simultaneously. Its dual-step gas pressure control prevents bumping, while the integrated water bath maintains temperatures up to 99°C covered by a transparent tempered glass and monitoring lights provide clear visibility of the process.

The HyperVAP serves as a solution for high-throughput laboratories working with organic solvents, environmental samples, food and beverage analysis, and chemical research.

APPLICATIONS

HyperCOOL

Biological Samples

Tissues, cells, enzymes, and proteins for preservation and research. Nucleotides and DNA/RNA for genomic studies.

Food and Beverage Samples

Fruits, vegetables, and flavor compounds for nutritional and sensory preservation.

Environmental Samples

Water and soil extracts for pollutant analysis.

Chemical and Organic Solvents

Volatile solvents such as acetonitrile, methanol, ethanol, and other compounds used in chemical synthesis or chromatography preparation.

Specialized Research Samples

Delicate organic materials like flowers for display or research. Reactive or unstable compounds requiring precise temperature control.

Biotechnological Samples

Drug development materials and sensitive biological products requiring ultra-low temperatures.



HyperVAC

DNA/RNA and Proteins

Concentration and drying for genomic and proteomic studies.

Volatile Chemical Solvents

Removal of solvents in chemical and biological research.

Environmental Samples

Concentration of water contaminants for environmental testing.

Macro and Micro Samples

Suitable for a wide range of sample volumes, from small to larger tubes.



HyperVAP

Organic Solvents

Evaporation for chemical synthesis or chromatography preparation.

Environmental Samples

Concentration of soil and water extracts for pollutant analysis.

Food and Beverage Samples

Preparation of flavor compounds or nutritional components for analysis.

Forensic Samples

Concentration of crime scene samples for investigative purposes.

Agrochemical Samples

Evaporation of pesticides or fertilizers for quality control.



Sectors	Sample Type	HyperCOOL (Freeze-Drying)	HyperVAC (Vacuum Concentration)	HyperVAP (Nitrogen Purging)
Biological Samples	Tissues, Cells, Enzymes	●	-	-
	DNA/RNA, Nucleotides	●	●	-
	Proteins	●	●	-
Food and Beverage Samples	Fruits, Vegetables	●	-	●
	Flavor Compounds	●	-	-
Environmental Samples	Water Extracts	●	●	●
	Soil Extracts	●	●	●
Chemical and Organic Solvents	Acetonitrile, Methanol	●	●	●
	Ethanol	●	●	●
	Hexane	●	-	●
Specialized Research Samples	Flowers	●	-	-
	Reactive Compounds	●	●	-
Forensic Samples	Crime Scene Samples	-	-	●
	Agrochemical Samples	-	-	●
	Pesticides, Fertilizers	-	-	●

FREEZE DRYER

HyperCOOL



Technical Specifications

	HC3055 / HC3110	HC9090PLUS
Ultimate Chamber Temp.	-55 / -110 (°C)	-90 °C
Cold Trap Volume	4 L	25.9 L
Cold Trap Size	Ø 165 x H 202 mm	Ø 305 x H 349 mm
Ice Condensing Capacity	3 kg	9.8 kg
Display Type	4" LCD	7" touch LCD with graphic display
Display Parameters	Vacuum, Time, Temperature	Vacuum, Time, Temperature (tray, sample, chamber), Real Time Graph
Control	ON / OFF (Vacuum, Defrost)	ON / OFF (Vacuum, Defrost), Heating Tray Temperature
Ice Condensing Performance	2.5 kg / 24h	9 kg / 24h
Power Requirement (Resting)	642 / 819 (VA)	1,500 VA
Power Supply	AC 230 V, 50 Hz (AC 220-230 V, 50/60 Hz; 110 V optional)	AC 220-230 V, 60 Hz (50 Hz, 110 V optional)
Dimension	W 400 x D 660 x H 570 mm	W 600 x D 708 x H 885 mm
Weight	58 / 72 (kg)	149.5 kg
Cat. No.	HHC-3055P / HHC-3110P	Hyper-HC9090PL

*The ultimate chamber temperature should be 15~20°C lower than the sample's freezing temperature.



Durability

The whole top plate and internal chamber are Teflon-coated; providing excellent resistance against aggressive solvents.



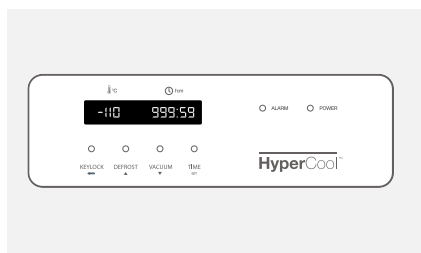
Shortened total cycle time

Hidden cooling coils allows condensed ice to be pulled out after a quick de-ice function for quick repetitive run setting.



Easy maintenance

The condenser, a key freeze dryer component, is located at the front covered by a magnetic, detachable cover for easy maintenance.



HyperCOOL Basic Display



HyperCOOL Plus Display



Standard Manifold for Freeze Drying

Manifold (4, 6, 8, 12)

Manifold type accessory designed for freeze drying samples in a Flask. Depending on the number of samples per run, (4, 6, 8 or 12) valve manifold can be selected. Configured with Glass base plate.

** Provides excellent chemical resistance for organic or rigorous samples.*

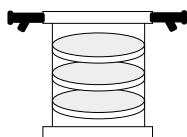


Description	No. of Valve	Cat. No.
Tree-type manifold	4	HHC-MF-4V
	6	HHC-MF-6V
T-type manifold	8	HHC-MF-8V
Double (6+6) manifold	12	HHC-MF-12V
Glass Base plate for 3055/3110		HHC-CPB-G
Glass Base plate for 9090PL		HHC-CPB(9)-G

Chamber + Manifold (4, 8)

Chamber type accessory designed for freeze drying samples in vials and also in flasks through the integrated manifold (4 or 8). Configured with Basic SUS Rack with 3 x ø25cm trays (HC-CR25) and Acrylic base plate.

** Cannot be used for organic samples or rigorous samples.*

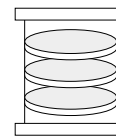


Description	Cat. No.
Acrylic chamber with 4 valve top	HHC-CH30-4V
Acrylic chamber with 8 valve top	HHC-CH30-8V
Acrylic Base plate for 3055/3110	HHC-CPB
Acrylic Base plate for 9090PL	HHC-CPB(9)
SUS rack with 3 trays	HHC-CR25
Additional tray (1EA)	HHC-CR-TS

Chamber

Chamber type accessory designed for freeze drying samples in vials. Configured Basic SUS Rack with 3 x ø25cm trays (HC-CR25) and Acrylic base plate.

** Cannot be used for organic samples or rigorous samples.*

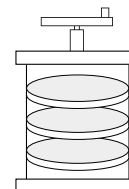


Description	Cat. No.
Acrylic chamber with top	HHC-CH30P
Acrylic Base plate for 3055/3110	HHC-CPB
Acrylic Base plate for 9090PL	HHC-CPB(9)
SUS rack with 3 trays	HHC-CR25
Additional tray (1EA)	HHC-CR-TS

Stoppering Chamber

Stoppering Chamber type accessory designed for freeze drying samples in vials and to seal them under vacuum state.

** Cannot be used for organic samples or rigorous samples.*



Description	Cat. No.
Stoppering Acrylic chamber including rack & trays	HHC-SP30M
Acrylic Base plate for 3055/3110	HHC-CPB
Heating shelf stoppering chamber for secondary drying only for 9090PL model.	HHC-HSM6003

Essential Accessories for Full System Configuration

Description	Cat. No.
 Glass base plate for HyperCOOL to connect manifold accessories to the main body.	HHC-CPB-G HHC-CPB(9)-G (for HHC-9090PL)
 Acrylic base plate for HyperCOOL to connect chamber type accessories to the main body.	HHC-CPB HHC-CPB(9) (for HHC-9090PL)
 Rotary vane pump Pumping speed: 50Hz – 200 L/min Ultimate pressure: 1×10^{-3} torr	GVP-W2V20
 Oil mist trap for rotary vane pump	GVP-WOF150

Compatible Accessories for Manifolds

Manifold Accessories	Cat. No.
 Freeze drying flask for manifold drying. ø60 (150 / 300 mL) ø90 (300W ~ 1,200 mL)	HHC-AGF150 HHC-AGF300 HHC-AGF300W HHC-AGF600 HHC-AGF900 HHC-AGF1200
 2 mL tube holder for (900 / 1,200) mL flasks, 3 x 20 x 2 mL	HHC-TR9-2 / HHC-TR12-2
 15 mL tube holder for (900 / 1,200) mL flasks, 12 x 15 mL conical	HHC-TR9-15 / HHC-TR12-15
 50 mL tube holder for (900 / 1,200) mL flasks, 4 x 50 mL conical	HHC-TR9-50 / HHC-TR12-50
 Ampoule pod for 16 x ø13.5 mm Ampoules, incl. 2 tubing clamps and 16 tube caps	HHC-APC-16
 Vacuum Box for 6 x MTP or 3 x DWP (Max. height 25/51 mm)	HHC-VBOX-SET

CENTRIFUGAL VACUUM CONCENTRATOR

HyperVAC



Technical Specifications

		HyperVAC-LITE	HyperVAC-MAX
Max. RPM		2,000 rpm	
Max. Capacity	Fixed Angle	120 x 1.5 / 2.0 mL microtubes	200 x 1.5 / 2.0 mL microtubes
	Swing-out	2 x MTP	4 x MTP or DWP
Chamber Heating Temp. Range		Off, R.T ~ 65°C	
Vacuum Pressure Display		1 ~ 1,013 mbar	
Auto Start / Stop of Vacuum		Yes	
Time Control		< 23 hr 59 min or continuous, Default value: 0 h 0 m (continuous)	
Weight w/o Rotor		22.5 kg	37 kg
Power Requirement w/o Pump		350 VA	700 VA
Power Supply		AC 230 V, 50 Hz (AC 220-230 V, 50/60 Hz; 110 V optional)	
Dimension		W 375 x D 445 x H 252 mm	W 475 x D 560 x H 350 mm
Cat. No.		HVC-2124	HVC-2200

ROTORS FOR HyperVAC

HRV-50-6 6 x 50 mL 	HRV-c50-6 6 x 50 mL conical 	HRV-15-12 12 x 15 mL 	HRV-m2.0-120 120 x 1.5/2.0 mL 	HRV-m0.5/2.0-124 48 x 1.5/2.0 mL + 76 x 0.5 mL 	HRVP-c50-6 6 x 50 mL conical
HRVP-c15-12 12 x 15 mL conical 	HRVP-v20-12 12 x 20 mL vial tube 	HRVP-10-32 32 x 10 mL 	HRVP-v10-18 18 x 10 mL vial tube 	HRV-mw-2 4 x MTP 	

ROTORS ONLY FOR HyperVAC-MAX

HRV-50-12 12 x 50 mL 	HRV-c50-12 12 x 50 mL conical 	HRV-15-48 48 x 15 mL 	HRV-m2.0-200 200 x 1.5/2.0 mL 	HRVP-c50-12 12 x 50 mL conical 	HRVP-v30-24 24 x 30 mL vial tube
HRVP-c15-24 24 x 15 mL conical 	HRVP-v8-60 60 x 8 mL vial tube 	HRVP-5-192 192 x 5 mL 	HRVP-gc100-8 8 x 100 mL pear shaped flask 	HRV-mw-4 8 x MTP / 4 x DWP 	



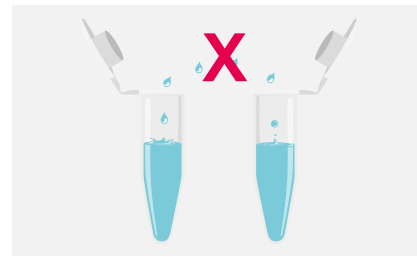
Durability

Teflon coated full-internal structure for easy-to-clean, super durable instrument providing excellent resistance against aggressive solvents.



Versatility

Medium to High throughput through two different models (HyperVAC LITE and MAX) to suit your needs perfectly.



Bump-out Free

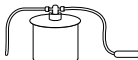
The vacuum pump only starts when 1,000 RPM is reached; making sure samples do not cross-contaminate each other during evaporation.

LIGHT VACUUM CONFIGURATION

26.6 or 6.9 mbar



Main Instrument	Cat. No.
 HyperVAC, Centrifugal vacuum concentrator	HVC2124 (LITE) HVC2200 (MAX)
 Rotor for HyperVAC	Refer to p.6 rotor chart

Diaphragm Pump	Cat. No.
 Diaphragm pump Pumping speed: 40 L/min Ultimate pressure: 6.9 mbar	Inquire
 Drip catcher for diaphragm pump Ø11 mm hose fitting	HV-DC20b

DEEP VACUUM CONFIGURATION

1 X 10⁻³ TORR

Cold traps are essential in labs without a fume hood to safely capture harmful solvent vapors and reduce atmospheric impact by trapping solvents before they are released.



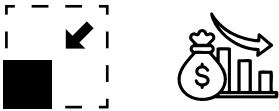
Cold Trap Configuration	Cat. No.
 HyperCOOL Cold trap -55 / -110 (°C)	HHC3055P HHC3110P
 HyperVAC, Centrifugal vacuum concentrator	HVC2124 (LITE) HVC2200 (MAX)
 Rotor for HyperVAC	Refer to p.6 rotor chart
 Accessories to connect the Cold trap to the HyperVAC	HHC-CPB HHC-BA HHC-VH-P

Pump & Optional Tables	Cat. No.
 Rotary vane pump Pumping speed: 50Hz – 200 L/min Ultimate pressure: 1 x 10 ⁻³ torr	HVP-W2V20
 Oil mist trap for rotary vane pump	HVP-WOF150
 Optional table The cold trap placed inside the table and vacuum pump placed at the back side of the table	HVCT-MA
 Optional table with drawer The vacuum pump placed inside the table	HVCT-MB

MULTI-PURPOSE INTEGRATED SYSTEM

HyperCOOL + HyperVAC

The combination of two systems
sharing a cold trap to save space and cost



“COMBINE AND SAVE”

The combination of a freeze dryer and centrifugal vacuum concentrator into a single system offers significant advantages for laboratories and research institutions. By sharing a cold trap, this integrated design reduces the need for separate equipment, saving valuable bench space and lowering operational costs. The system is particularly beneficial for universities and multidisciplinary research centers, where diverse fields of study often require versatile tools to handle a wide range of sample types.

This combined system supports freeze-drying for long-term preservation of sensitive biological materials and vacuum concentration for rapid drying of liquid samples, making it a beneficial solution for applications such as molecular biology, environmental science, food technology, and chemical analysis. Researchers can efficiently process samples for multiple projects using one compact system, enhancing productivity and fostering collaboration across departments. With the slogan “Combine and Save,” this solution embodies practicality and cost-effectiveness, appealing to institutions seeking to maximize their resources while advancing scientific discovery.



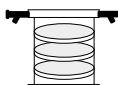
Industries that could maximize efficiency by
utilizing the combined system

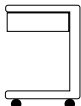
Industry	HyperCOOL Applications	HyperVAC Applications
Pharmaceutical	Vaccines, antibodies, antibiotics, blood plasma, proteins, enzymes, hormones	APIs, drug formulations, and solvent removal
Biotechnology	Microbial cultures, viruses, diagnostic kits, enzymes, and antibodies	DNA, RNA, proteins, and nucleotides for genomic/ proteomic studies
Food	Fruits, vegetables, coffee, tea, spices, and baby food	Volatile compounds and food sample preparation
Environmental Science	Soil and water samples for pollutant analysis	Residue analysis and contaminant detection
Chemical	Sensitive chemical products like graphene and precursors	Purification and concentration of solvents and compounds
Cosmetics	Natural ingredients for clean-label products	Active compound preparation for formulations
Research Laboratories	Tissues, microorganisms, plant extracts, and biological samples	Small-volume sample preparation for analytical studies



HyperCOOL		Cat. No.
	HyperCOOL cold trap -55 / -110 (°C)	HHC3055P HHC3110P
	Rotary vane pump Pumping speed: 50Hz – 200 L/min Ultimate pressure: 1×10^{-3} torr	HVP-W2V20
	Oil mist trap for rotary vane pump	HVP-WOF150

HyperVAC		Cat. No.
	HyperVAC (Centrifugal vacuum concentrator) Hyper-VAC (LITE / MAX)	HVC2124 HVC2200
	Rotor for HyperVAC	Refer to p.6 rotor chart
	Accessories needed to combine the two systems.	HHC-BA HHC-VH-P

Freeze-drying Accessories		Cat. No.
	Acrylic chamber with 4 valve top	HHC-CH30-4V
	Acrylic chamber with 8 valve top	HHC-CH30-8V
	Acrylic Base plate for 3055/3110	HHC-CPB
	SUS rack with 3 trays	HHC-CR25
	Additional tray (1EA)	HHC-CR-TS
Type	No. of valve	Cat. No.
	Tree-type 4	HHC-MF-4V
	Tree-type 6	HHC-MF-6V
	T-type 8	HHC-MF-8V
	Double (6+6) 12	HHC-MF-12V
Glass Base plate for 3055/3110		HHC-CPB-G

Optional table		Cat. No.
	Optional table with drawer The vacuum pump placed inside the table	HVCT-MB

GAS PURGING EVAPORATOR

HyperVAP



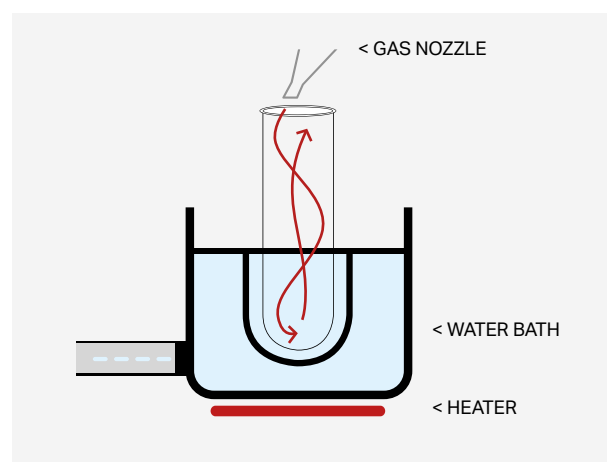
Technical Specifications

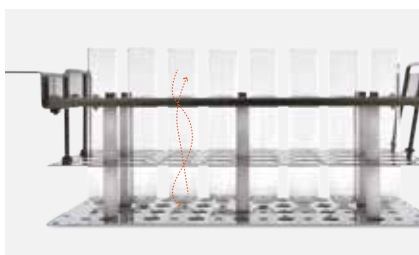
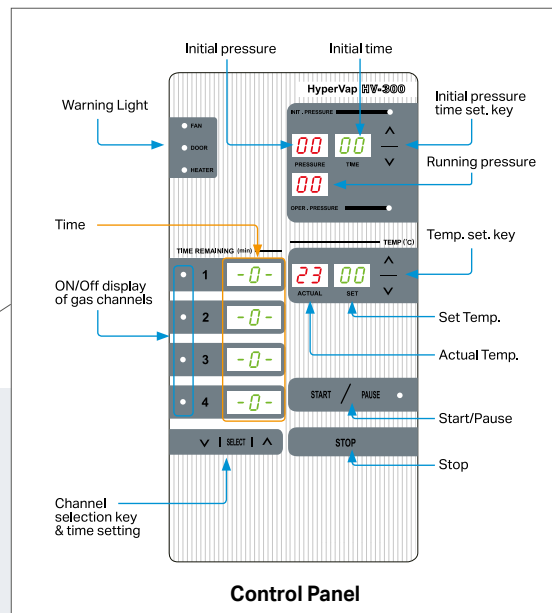
	HyperVAP
Number of Samples	6 ~ 32
Sample Volume	5 ~ 300 mL
Water Bath Temperature	~ 99°C
Max Time Control	~ 999 min (4 independent channels)
Max Time for Initial Pressure	~ 999 min.
Gas	Compressed air, Nitrogen, etc.
Operating Gas Pressure	Max. 50 psi
Pressure Control	Automated dual-step control (initial & running pressure)
Individual channel Time Setting	Yes
Light On/Off	Yes
Forced Vapor Evacuation	Yes (by fan)
Power Supply	AC 230 V, 50 Hz (AC 220-230 V, 50/60 Hz; 110 V optional)
Power Requirement	800 VA
Dimension	W 594 x D 340 x H 320 mm
Weight	26.5 kg
Cat No.	HHV300

SYSTEM DIAGRAM

HyperVAP is an automated evaporative concentrator that efficiently evaporates organic solvents by injecting inert gas into a sample under constant temperature conditions. HyperVAP, HV-300, provides ideal sample concentration that meets both efficiency and convenience based on semi-helical gas flow. Inert gas is incorporated through the nozzles inside the lid and creates semi-helical gas flow in the sample tubes to maximize the surface area for efficient vaporization.

Evaporated vapor is evacuated by a fan on the back of instrument. To speed up evaporation, hot temperature can be applied from the water bath where the sample tubes are immersed into. The initial gas (air) flow can be controlled separately to avoid abrupt bumping of samples and the time setting of four nozzle channels can be managed individually to afford simultaneous operation of different amount or diverse solvent samples. HV-300 accommodates max. 32 samples by changing the nozzles and tube racks properly depending on the volume of the samples.





Fast evaporation

Gas blowdown in a semi-helical form maximizes the surface area and accelerates evaporation.



Durability

The tempered glass chamber provides excellent chemical resistance and visibility of the sample.



Rubber Grip

The rubber grip can be installed in a tube rack to prevent movements of the tube samples during evaporation.

Gas purging accelerates the evaporation of a liquid by increasing the surface area of the liquid. Our proprietary semi-helical gas flow mechanism provides high evaporation rate.

	40 psi	30 psi	20 psi
Hexane	1:50	2:10	3:20
Methanol	5:50	6:30	9:50
Acetonitrile	5:45	7:10	11:40
Ethanol	6:10	8:30	15:30

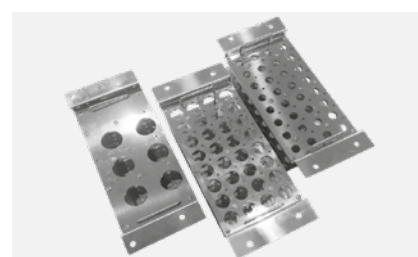
Experimental Conditions

Sample volume : 5 mL in 20 mL tube

Temperature : 40°C

Gas : Nitrogen gas

(min:sec)



Versatility

Nozzles and tube racks can be customized according to the need. (Inquire).

hanil

68 years of Dedication & Trust
ihanol.com



Centrifuge



Concentrator



Freeze Dryer



CO₂ Incubator



Magnetic Stirrer



Roller Mixer



Shaker



Deep Freezer



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