

ETAC®

WINTTECH® **NEO**

TEMPERATURE CYCLE / THERMAL SHOCK CHAMBER



A I R & L I Q U I D

**TEMPERATURE CYCLE/THERMAL
SHOCK CHAMBER**

DEW CYCLE CHAMBER



Kusumoto Chemicals LTD.

WINTECH NEO, fully satisfying “Confidence”, “Comfort” and “Convenience” with improved basic specification, environmental performance and user-friendly operation, launched on market.

WINTECH[®] **NEO**

TEMPERATURE CYCLE / THERMAL SHOCK CHAMBER



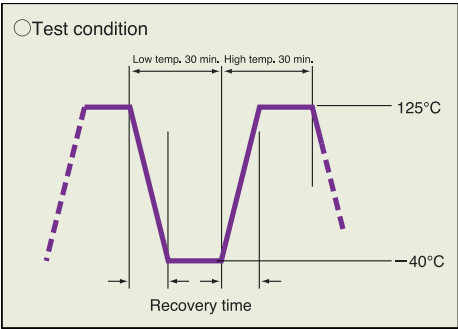
Superior temperature recovery performance and uniform temperature distribution.

Shortest recovery time

WINTECH NEO achieved the shortest recovery time by featuring cooling/heating circuit system having excellent thermal refrigeration efficiency and optimized cold/heat storage materials at low and high temperature preparation rooms.

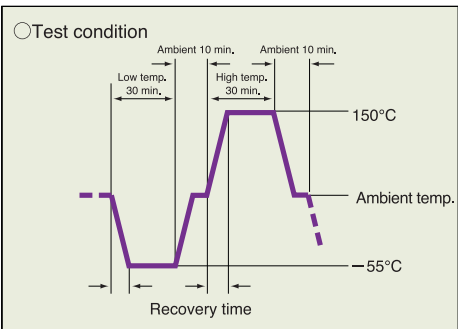
- 2 zone test (up-wind sensor)
(−40°C 30 min.⇔ +125°C 30 min.)

	NT550A	NT1250W
Test room dimension (WxHxDmm)	370x330x400 (48L)	650x500x400(130L)
Load	3.5kg	7.5kg
	IC2.5kg + shelf 1kg	IC4.7kg + shelf 2.8kg
Low. temp recovery time	53 sec.	1 min.
High temp. recovery time	3.30 min.	3.10 min



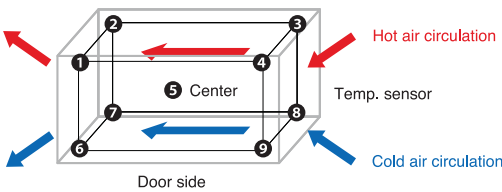
- 3 zone test (up-wind sensor)
(−65°C 30 min.⇔ Room temp. 10 min. ⇔ +150°C 30 min.)

	NT1250W	NT2050W
Test room dimension (WxHxDmm)	650x500x400 (130L)	700x500x600(210L)
Load	7.5kg	26kg
	IC4.7kg + shelf 2.8kg	IC20kg + shelf 6kg
Low. temp recovery time	40 sec.	38 sec.
High temp. recovery time	50 sec.	2 min



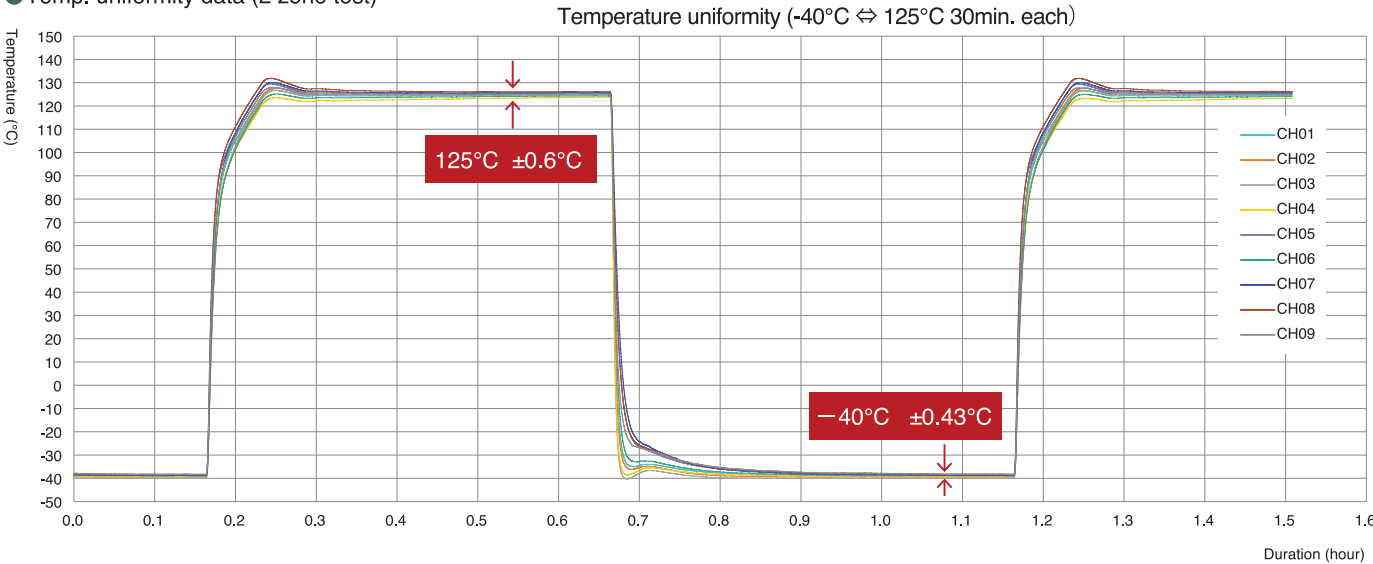
Superior temperature uniformity (±1.0°C during stable condition)

Sufficient air circulation volume by sirocco fan maintains superior temperature uniformity.



[Test condition]
High temp. exposure : 125°C 30 min.
Low temp. exposure : −40°C 30 min.

- Temp. uniformity data (2 zone test)



※The temp. distribution data is actual value for example and not guaranteed one.

Controller is more comfortable and easy-to-use by wide-color LCD touch panel

Controller is reborn with enhanced user-friendly and comfortable operation because of newly equipped 7.5 inch wide-color LCD touch panel for improved operability and visibility. Moreover, operation data is automatically recorded in memory and reviewed occasionally.



POINT 1

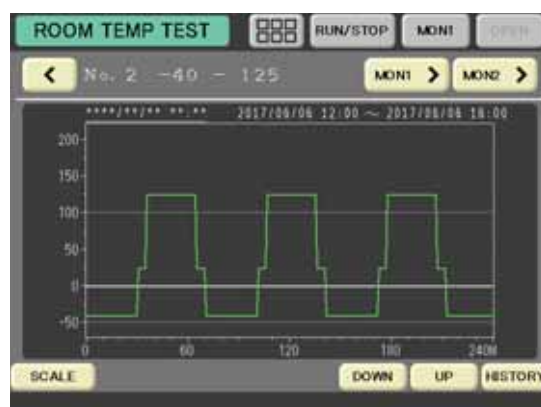
Large LED and color LCD with touch panel.

LED visually shows run status/error situation. 7.5 inch wide-color LCD touch panel achieves sophisticated program function as well as user-friendly operation.

POINT 2

Automatic recording function

Operation data automatically recorded even during pause situation. Recorded data is reviewed on monitor display. Operation data is downloaded into USB.



POINT 3

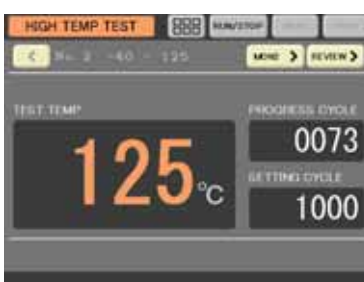
Various display function

Operation status, detailed explanation etc. is confirmed by various graphics.

● Menu screen



● Monitor screen 1



● Monitor screen 2



Hot-gas function (Option)

- Long-term defrost free operation 1 month (approx. 750 hours) on NT2050W

Newly developed hot-gas function

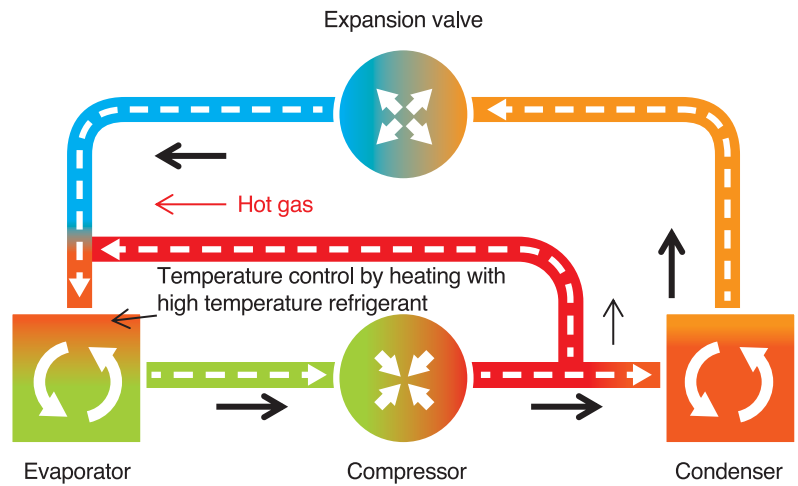


Drastic improvement of basic structure

- Rigidity of main body
- Newly designed packing
- Penetration parts (door, damper shaft)



Achievement of defrost-free operation more than 1 month (approx. 750 hours)

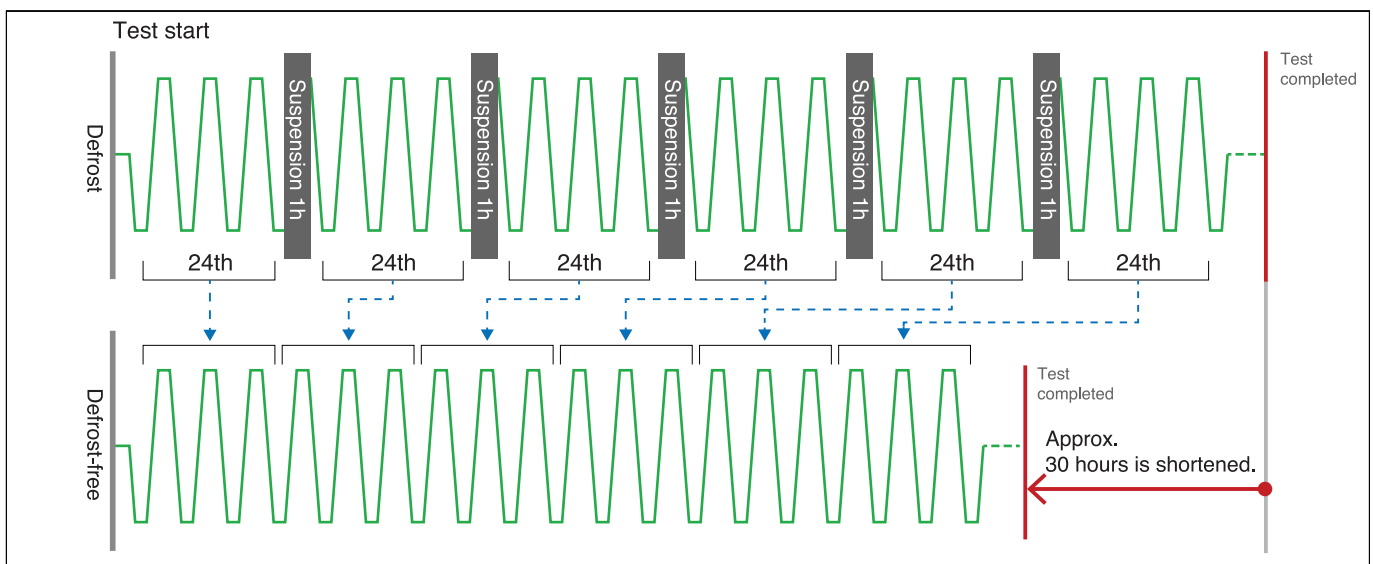


Conceptual diagram of hot gas control

- Hot-gas function contributes reduction of frost on refrigerating circuit.
Testing time can be shortened.
(Our comparison: -40°C/30 min. ~ +125°C/30 min. 2 zone)
- Hot-gas function creates a fluctuation of temperature during low temperature test due to switching hot gas and cold refrigerant.

Model		NT2050W
Test condition	High temp. exposure	+125°C 30 min.
	Low temp. exposure	-40°C 30 min.
	Ambient temp.	Less than +23°C 60%Rh
	Cooling water temp.	+25°C
	Power supply	AC200V 3φ 50/60Hz ±10%
	Sensor position	Down-wind
	Specimen	Plastic mold IC: 7.0kg Specimen shelf: 3.0kg
Temp. recovery time		Within 5 min.

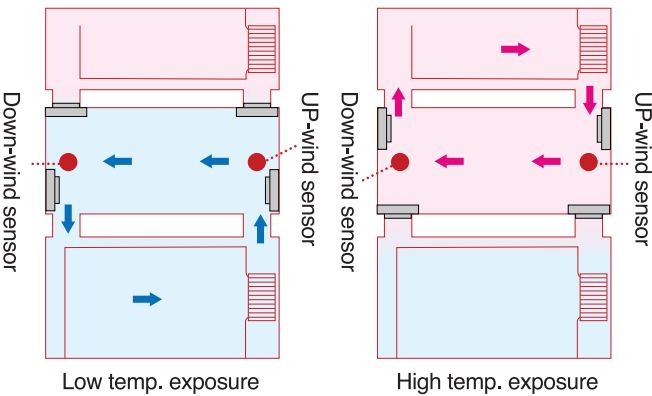
Comparison test time during 1 month (approx. 750 hours) (NT2050W)



Auxiliary function created by plenty feedback from end-users.

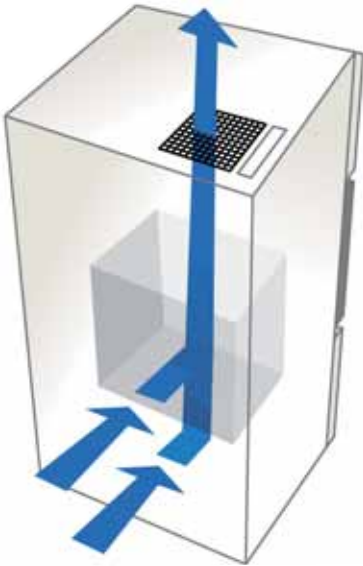
Down-wind temp. sensor (option)

In addition to up-wind sensor, down-wind sensor is adopted as standard.



Roof-centralized air exhaust mechanism (only air-cooling type)

Heat generated from refrigerator is exhausted from roof forcedly which contributes negative influence to surrounding equipment and space-saving.



Dustproof filter (only for air-cooling type)

Dustproof filter located at rear side prevents penetration of dust from outside.

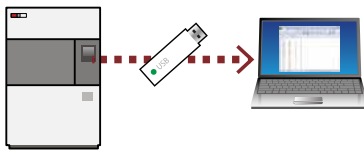


Operation data download function

Various data not only during operation and pause but also at error is automatically saved. Such data is downloaded by USB memory with CSV format

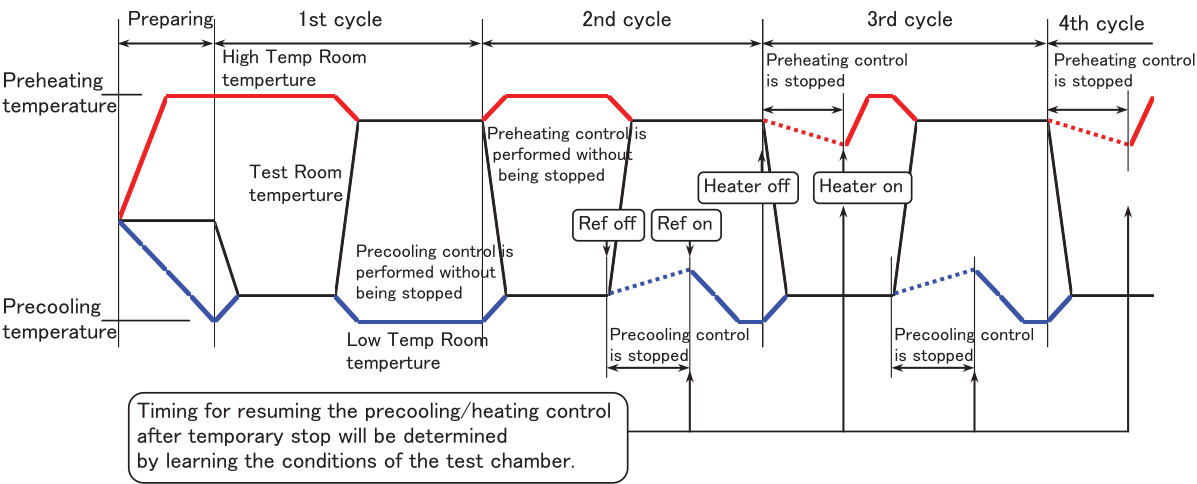


	A	B	C	D	E
1	Date	Time	PV	SV	RunIndicate
2	2016/12/1	22:52:33	125	125	1
3	2016/12/1	22:52:48	125	-40	2
4	2016/12/1	22:53:03	88	-40	2
5	2016/12/1	22:53:18	34	-40	2
6	2016/12/1	22:53:33	0	-40	2
7	2016/12/1	22:53:48	-18	-40	2
8	2016/12/1	22:54:03	-28	-40	2



ECO Specification

Unique “self-learning” function selects optimized timing of pre-cool and pre-heat temperatures by cycle.



■Specifications Table (Air-cooling System)

Model No.				NT550A	NT1050A	NT1250A
Temperature switching method				Hot and cold air switching system by dampers (stationary specimen method)		
Type of test				2-zone and 3-zone temperature cycle tests		
Performance	Test room	Temperature recovery performance conditions	Temperature range of low temperature test	-65℃~0℃		
			Temperature range of high temperature test	+60℃~+200℃		
			Temperature recovery time	Within 4 minutes		
			Lower soak temperature/time	-55℃/30 minutes		
			Room temperature soak time	5 minutes		
			Upper soak temperature/time	+150℃/30 minutes		
			Specimen	Plastic mold IC: 2.5kg		
		Control sensor position	Upwind			
	Lo-temp room	Precooling temperature range		-75℃ to 0℃		
	Hi-temp room	Preheating temperature range		+60℃ to +225℃		
Performance-guaranteed ambient temperature			+23℃±5℃			
Operable ambient temperature range			+10℃~+35℃		+10℃~+32℃	
Main body	Zone structure		3-zone system (test room, high temperature room, low temperature room)			
	Internal dimensions (W×H×Dmm)		370x330x400mm		370x500x400mm 650x500x400mm	
	External dimensions (W×H×Dmm)		1150x1800x1315mm		1150x1940x1720mm 1430x1940x1720mm	
			(protruding parts are not included)			
	Weight (kg)		About 730kg		About 1050kg About 1230kg	
	Withstand load of the test room		30 kg		100 kg	
			(uniformly distributed load)			
	Maximum number of specimen shelf boards		6 pieces		7 pieces	
	Allowable load of specimen shelf boards		5.0kg/piece			
	Door open / close mechanism		Single hinged door			
Cable port		Φ50mm cable port (one on the left side of the main body)				
Main unit	Temperature controller	Control system	PID control method			
		Power saving method	ECO operation (learning function included—stops precooling/preheating control)			
		Display type	LCD graphic color display with touch panel (7.5")			
		Display resolution	1℃			
		Number of registrable programs	Up to 30 programs (program No.1 to No.30)			
		Number of temperature cycles	Up to 9,999 cycles			
		Soak time setting	High/low temp.: max. 120 min., Room temp.: max. 90 min.			
		Memory capacity	16GB			
		Interface	USB2.0TYPE A connector			
		Additional functions	Automatic start (start, standby), automatic defrost, wait, self monitor, test end time display, number of completed cycles display, troubleshooting display, precooling/preheating temperature automatic setting, warning log display, test end condition selection (cycle stop, complete stop after defrosting, prepare for another test after completion of a cycle), cycle counter with the reset function (4 conditions), test end output, time signal output (3 points), upper and lower temperature limits warning, specimen's temperature recovery control, error message display, pause, Graphic display USB port, etc.			
		Temperature sensor		Pt100(JISC1604)		
		Refrigeration circuit	Refrigeration method	Dual refrigeration system		
			Refrigerant	R-404A and HFC-23		
Heating circuit		Strip wire heater				
Circulation fan		Sirocco fan				
Damper driving mechanism		Air cylinder				
Protective device				Earth leakage breaker, fan thermal relay, circulation fan negative phase preventive relay, overheat protector for high temperature room, overheat protector for test room, overheat protector for low temperature room, upper/lower temperature limits warning device for test room, refrigerator 1 & 3 overload relay, refrigerator 1 & 3 high and low pressure switch, proximity switch for damper, door lock mechanism, sensor disconnection detection function, abnormal ambient temperature detection function, external alarm output, interlock terminal, etc.		
Primary side facilities	Power supply	Power supply	AC200V, 3-phase, 50/60Hz, power supply fluctuation range: ±10%			
		Maximum electric power consumption	19KVA		30KVA 32KVA	
		Operating current	26A		49A 50A	
		Rated current	55A		87A 93A	
	Refrigerator exhaust heat energy		7.0kW		11kW	
Air (for air cylinder actuation)		Dry air: 0.4 to 0.7 MPa To be connected at the back of the main body with an air hose with external diameter of 6mm (external dimension)				
Drainage (for discharging defrosted water, etc.)		The hose tip to be exposed to air (1 side), φ8mm (internal diameter) × φ11mm, silicon hose				
Accessories	Silicon plugs for cable port		2 piece			
	Operation manual		1 copy			
	Test certificate		1 copy			

【Note 1】 Performances are guaranteed when ambient temperature is +23°C, the specification value at rated voltage (200 V), Off setting of ECO and hot gas control.

【Note 2】 When temperature at the installation site is below +5 or over +35°C, the operation may be stopped for protection of the equipment.

【Note 3】 If temperature at the installation site exceeds 30°C, minimum temperature may not be maintained.

【Note 4】 Operating current (A) is the maximum current value that can be reached during a normal operation..

【Note 5】 Maximum load current (A) is the maximum current that flows when all apparatuses are concurrently turned on, and this is used to determine the specifications of primary side equipment.

【Note 6】 When the optional items that provide changes in the main body structure, such as floor load carrying capacity, additional measuring hole are installed additionally, the performance specifications may change.

■Specifications Table (Water-cooling System)

Model No.				NT1050W	NT1250W	NT2050W	
Temperature switching method				Hot and cold air switching system by dampers (stationary specimen method)			
Type of test				2-zone and 3-zone temperature cycle tests			
Performance	Test room	Temperature range of low temperature test	-65℃~0℃				
			Temperature range of high temperature test	+60℃~+200℃			
		Temperature recovery performance conditions		Temperature recovery time	Within 4 minutes		Within 10 minutes
			Lower soak temperature/time	-65℃/30 minutes			
			Room temperature soak time	5 minutes			
			Upper soak temperature/time	+150℃/30 minutes			
			Specimen	Plastic mold IC: 2.5kg	Plastic mold IC: 5.0kg		
			Control sensor position	Upwind			
	Lo-temp room	Precooling temperature range	-80℃ to 0℃				
	Hi-temp room	Preheating temperature range	+60℃ to +225℃				
Performance-guaranteed ambient temperature				+23℃±5℃			
Operable ambient temperature range				+5℃~+35℃			
Main body	Zone structure		3-zone system (test room, high temperature room, low temperature room)				
	Internal dimensions (W×H×Dmm)		370x500x400mm	650x500x400mm	700x500x600mm		
	External dimensions (W×H×Dmm)		1150x1940x1620mm	1430x1940x1470mm	1480x1940x1670mm		
			(protruding parts are not included)				
	Weight (kg)		About 1000kg	About 1180kg	About 1280kg		
	Withstand load of the test room		30 kg	100 kg			
			(uniformly distributed load)				
	Maximum number of specimen shelf boards		7 pieces				
	Allowable load of specimen shelf boards		5.0kg/piece		7.5kg/piece		
	Door open / close mechanism		Single hinged door				
Cable port		Φ50mm cable port (one on the left side of the main body)					
Main unit	Temperature controller		Control system	PID control method			
			Power saving method	ECO operation (learning function included—stops precooling/preheating control)			
			Display type	LCD graphic color display with touch panel (7.5")			
			Display resolution	1℃			
			Number of registrable programs	Up to 30 programs (program No.1 to No.30)			
			Number of temperature cycles	Up to 9,999 cycles			
			Soak time setting	High/low temp.: max. 120 min., Room temp.: max. 90 min.			
			Memory capacity	16GB			
			Interface	USB2.0TYPE A connector			
	Additional functions		Automatic start (start, standby), automatic defrost, wait, self monitor, test end time display, number of completed cycles display, troubleshooting display, precooling/preheating temperature automatic setting, warning log display, test end condition selection (cycle stop, complete stop after defrosting, prepare for another test after completion of a cycle), cycle counter with the reset function (4 conditions), test end output, time signal output (3 points), upper and lower temperature limits warning, specimen's temperature recovery control, error message display, pause, Graphic display, USB port, etc.				
			Temperature sensor		Pt100(JISC1604)		
			Refrigeration circuit	Refrigeration method	Dual refrigeration system		
				Refrigerant	R-404A and HFC-23		
			Heating circuit		Strip wire heater		
Circulation fan		Sirocco fan					
Damper driving mechanism		Air cylinder					
Protective device			Earth leakage breaker, fan thermal relay, circulation fan negative phase preventive relay, overheat protector for high temp room, overheat protector for test room, overheat protector for low temp room, upper/lower temp limits warning device for test room, refrigerator 1 & 3 overload relay, refrigerator 1 & 3 high and low pressure switch, proximity switch for damper, door lock mechanism, sensor disconnection detection function, abnormal cooling water temp detection function, external alarm output, interlock terminal, etc.				
Primary side facilities	Power supply		Power supply	AC200V, 3-phase, 50/60Hz, power supply fluctuation range: ±10%			
			Maximum electric power consumption	35KVA	44KVA	48KVA	
			Operating current	56A	63A	65A	
			Rated current	100A	125A	138A	
	Refrigerator exhaust heat energy (cooling tower)	Cooling water flow rate (liter/min)	38 (water temperature: +25℃)/ 55 (water temperature: +32℃), connection bore diameter: 1"1/4B	47 (water temperature: +25℃)/ 82 (water temperature: +32℃), connection bore diameter: 1"1/4B			
		Cooling water inlet pressure (MPa)	0.2~0.5				
	Air (for air cylinder actuation)		Dry air: 0.4 to 0.7 MPa To be connected at the back of the main body with an air hose with external diameter of 6mm (external dimension)				
Drainage (for discharging defrosted water, etc.)		The hose tip to be exposed to air (1 side), φ8mm (internal diameter)×φ11mm, silicon hose					
Accessories	Silicon plugs for cable port		2 piece				
	Operation manual		1 copy				
	Test certificate		1 copy				

【Note 1】 Performances are guaranteed when ambient temperature is +23°C, the specification value at rated voltage (200 V), Off setting of ECO and hot gas control.

【Note 2】 When temperature at the installation site is below +5°C or over +35°C, the operation may be stopped for protection of the equipment.

【Note 3】 If temperature at the installation site exceeds 30°C, minimum temperature may not be maintained.

【Note 4】 Operating current (A) is the maximum current value that can be reached during a normal operation..

【Note 5】 Maximum load current (A) is the maximum current that flows when all apparatuses are concurrently turned on, and this is used to determine the specifications of primary side equipment.

【Note 6】 When the optional items that provide changes in the main body structure, such as floor load carrying capacity, additional measuring hole are installed additionally, the performance specifications may change.

About cooling water and heat generation systems on primary side

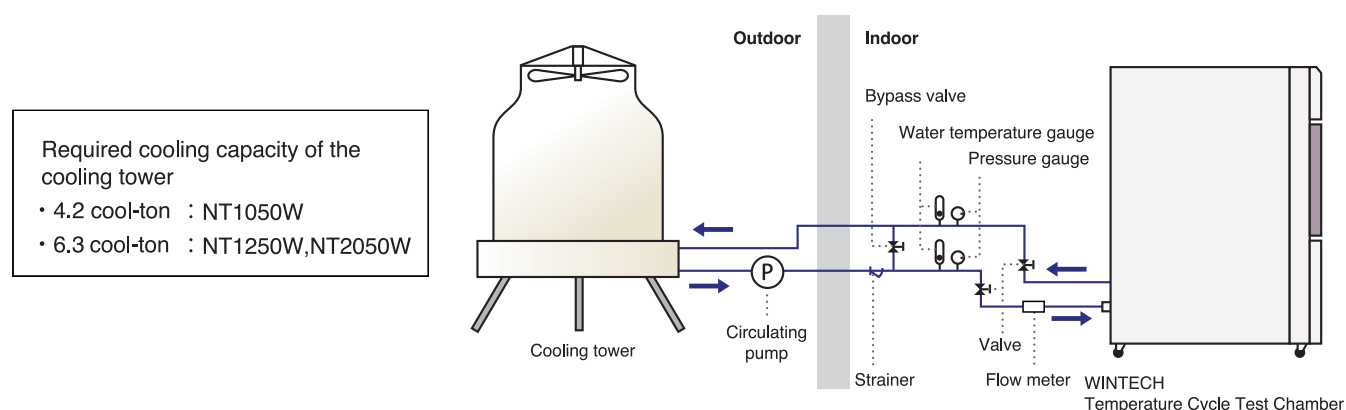
■ Selection of air-cooling or water-cooling system

There are water-cooling specification and air-cooling specification for WINTECH series. Please study the features of each specification carefully and select the specification most suited to the required conditions of the installation site, etc.

Water-cooling specification	Air-cooling specification
<ul style="list-style-type: none"> ○ A water-cooling specification which can constantly maintain the water temperature at less than 32°C and secure a certain flow rate (see below). Because the chamber operation stops whenever the water-cooling system stops, daily inspection of the water-cooling system is necessary for the stable operation of the chamber. ○ Because there is no heat release from the chamber, it has no adverse effects on the surrounding environment. ○ Steady performance can be obtained throughout the year by regular maintenance of the water-cooling system. ○ Routine cleaning of the water-cooling pipe is necessary in order to avoid accumulation of scale on the internal surface of the water-cooling pipe and the condenser. 	<ul style="list-style-type: none"> ○ A heat release system is necessary to exhaust heat from the chamber such as a ventilation facility and air conditioner. If the chamber is operated in a small room where the air conditioning system is insufficient, the chamber may be forcibly stopped by the protection function when the room temperature becomes too high due to heat released from the chamber. It is advisable to operate the chamber in a room where the ambient temperature is maintained at less than 30°C (maximum operable temperature is 35°C). ○ The performance can be greatly affected by the ambient temperature. ○ Maintenance including regular cleaning of the condenser filter is relatively easy. ○ As compared to the water-cooling specification, the operation noise can be a little louder. ○ It can be easily moved to another location.

■ Piping work for water-cooling system (to be done by customer)

For details about piping work on the primary side for NT1050W, NT1250W, NT2050W please refer to the following.



<Note>

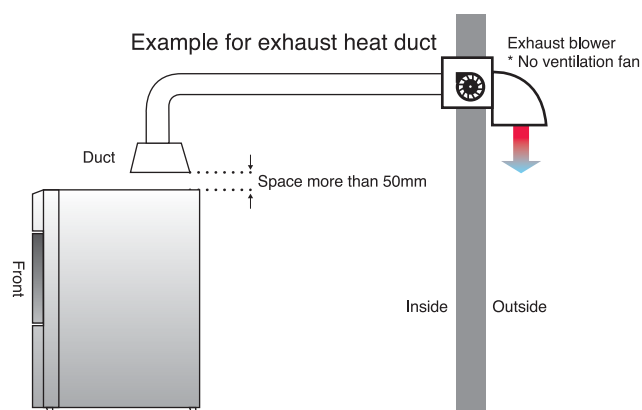
- In order to prevent erosion of pipes, please adjust the flow rate inside the pipe to 3m / sec or less.
 - Make sure to use the cooling tower fan with a thermostal control.
 - Please clean up scale inside the pipes regularly (at least once or twice a year).
 - Regarding the water standard of cooling water and makeup water, please refer to the Japan Refrigeration and Air Conditioning Industry's standard No. JRA-GL-02-1994.
- However, the above is for your reference only. For more detailed advice, please contact your vender.

■ Recommendation for connection between chamber and duct

Blower is requested to have exhaust air volume more than rated one.

Model	Max. exhaust heat volume (kW)	Exhaust air volume (m³/h)
NT550A	7	2400 (2880)
NT1050A	11	3940 (4340)
NT1250A	11	3940 (4340)

() is for 60Hz



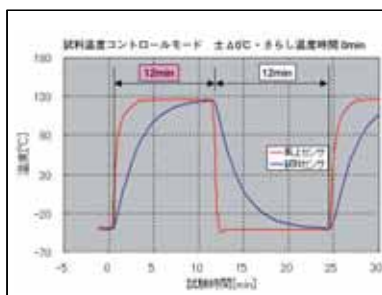
OPTION

■ Specimen temperature control mode

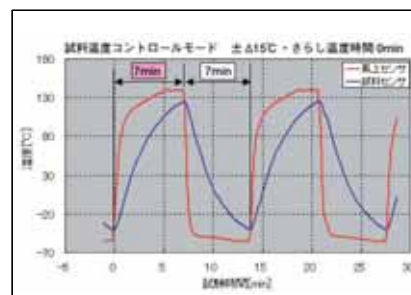
The total test time can be shortened by adding heating / cooling temperature (Δt) on top of the initial atmospheric exposure temperature.



● Operation example for specimen temperature control mod



● Operation example 2 of temperature control mode by specimen temperature



● Operation example 3 of temperature control mode by specimen temperature

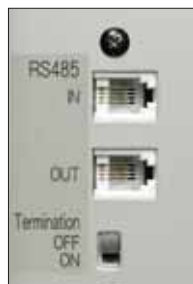
■ Paperless recorder

The data can be saved in an external media (SD card) and transferred to the PC using the provided software.



■ RS485 interface

Complies with the RS485 standard. Excellent for remote control or data management with the PC. Easily connected with a modular jack type connector.



■ Square cable port

By model, square cable port can be added.



■ Power supply volume monitor

It can be utilized for management for power supply etc.



■ Air compressor

This is a dry air compressor in order to actuate dampers and door open / close mechanisms. (It can not be built in the chamber.)



Model	Standard	Left side	Right side
NT550A	N/A	1 or 2	1
NT1050A / W NT1250A / W NT2050W	N/A	1 or 2	w/o recorder 1 or 2 with recorder N/A

■ Round cable port

One cable port is available at left side as standard.



Model	Standard	Left side	Right side
NT550A	1	1	N/A
NT1050A / W NT1250A / W NT2050W	1	1	w/o recorder 1 or 2 with recorder N/A

■ Shelf board / shelf bracket

Can be ordered if additional standard shelf boards / shelf brackets are required. (Withstand load: 5.0kg / shelf, only for NT2050W, it is 7.5kg / shelf)



■ Different voltage specification

An optional feature for overseas users. Please inform us your required voltage, current, frequency, and other conditions.

■ Cycle counter

This counter maintains and accumulates the number of cycles even though the power is turned off. By resetting, the number of cycles will go back to "0".

■ AC 100V plug socket

Rated current is 3A.

DEW CYCLE

2way use

- Dew cycle chamber satisfies demand for test of current and sophisticated electronics products, especially automotive industry, by reappearance of freezing/condensation/drying as cycle repeatedly.
- Dew cycle chamber provided by ETAC is usable for not only dew cycle test but also ordinal temperature cycle test for improvement of test efficiency by one unit as 2 way use.



DEW CYCLE CHAMBER SPECIFICATION SHEET

MODEL NO.			DC1200S	DC2010S
Internal dimension	W x H x D (mm)		650 x 500 x 400	700 x 500 x 600
Dew cycle test	Low temp. range/		-10°C~-55°C/40%RH~95%RH (at 25°C~80°C)	
	High temp. humid. range			
	Temp. recovery specification (No specimen)	2 zone	-30°C⇔+25°C 95%RH Soaking time 30 min., recover time within 5 min.	
		3 zone	-30°C⇒+25°C 90%RH⇒+25°C 50%RH (ambient)⇒-30°C Soaking time 60 min., recover time within 5 min.	
Temp. cycle test	Temp. recovery specification (IC 2.5kg))	Low temp. range/high temp. range	-10°C~-55°C/+20°C~+150°C	
		Recovery time	Within 5 min.	
		Test condition	-55°C/30 min.⇔Room temp./5 min.⇔+130°C/30min.	

ETAC helps our customers produce "High quality product"

ETAC®

*By making the best use of our own expertise and by providing quality service, we aim to help our customers to develop high-quality, reliable products.

<http://www.etac.kusumoto.co.jp/>

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For further inquiries, contact:



ISO9001 Certified
JQA-QM8943



Notice for safe use

When using, please read attached manual carefully. Avoid installing in places where water, moisture, dust, or soot may gather. These may cause fire, accident, or electric shock.