

## ■ 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 range of low temperature test	-65°C~0°C		
		Temperature range of high temperature test	+60°C~+200°C		
		Temperature recovery time	Within 4 minutes		
		Lower soak temperature/time	-55°C/30 minutes		
		Room temperature soak time	5 minutes		
		Upper soak temperature/time	+150°C/30 minutes		
		Specimen	Plastic mold IC: 2.5kg		
	Control sensor position	Upwind			
	Lo-temp room	Precooling temperature range	-75°C to 0°C		
	Hi-temp room	Preheating temperature range	+60°C to +225°C		
Performance-guaranteed ambient temperature			+23°C±5°C		
Operable ambient temperature range			+10°C~+35°C	+10°C~+32°C	
Main body	Zone structure		3-zone system (test room, high temperature room, low temperature room)		
	Internal dimensions (W×H×Dmm)		370×330×400mm	370×500×400mm	650×500×400mm
	External dimensions (W×H×Dmm)		1150×1800×1315mm	1150×1940×1720mm	1430×1940×1720mm
			(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°C		
		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°C~0°C			
		Temperature range of high temperature test	+60°C~+200°C			
		Temperature recovery performance	Temperature recovery time	Within 4 minutes	Within 10 minutes	
			Test conditions	Lower soak temperature/time	-65°C/30 minutes	
		Room temperature soak time		5 minutes		
		Upper soak temperature/time		+150°C/30 minutes		
		Specimen	Plastic mold IC: 2.5kg	Plastic mold IC: 5.0kg		
	Control sensor position	Upwind				
	Lo-temp room	Precooling temperature range	-80°C to 0°C			
	Hi-temp room	Preheating temperature range	+60°C to +225°C			
Performance-guaranteed ambient temperature			+23°C±5°C			
Operable ambient temperature range			+5°C~+35°C			
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°C			
		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°C)/ 55 (water temperature: +32°C), connection bore diameter: 1"1/4B	47 (water temperature: +25°C)/ 82 (water temperature: +32°C), 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.

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【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

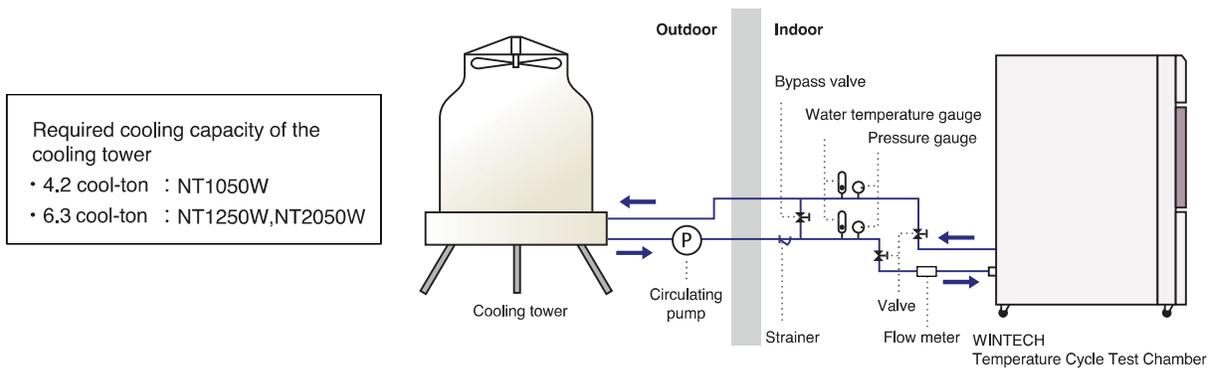
## ■ Selection of air-cooling or water-cooling system

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"> <li>○ 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.</li> <li>○ Because there is no heat release from the chamber, it has no adverse effects on the surrounding environment.</li> <li>○ Steady performance can be obtained throughout the year by regular maintenance of the water-cooling system.</li> <li>○ Routine cleaning of the water-cooling piper is necessary in order to avoid accumulation of scale on the internal surface of the water-cooling piper and the condenser.</li> </ul>	<ul style="list-style-type: none"> <li>○ A heat release systems 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 main-tained at less than 30C (maximum operable temperature is 35C)</li> <li>○ The performance can be greatly affected by the ambeint temperature.</li> <li>○ Maintenance including regular cleaning of the condenser filter is relatively easy.</li> <li>○ As compared to the water-cooling specification, the operation noise can be a little louder.</li> <li>○ It can be easily moved to another location.</li> </ul>

## ■ 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 piper 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-Q2-1994.
- 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 (m <sup>3</sup> /h)
NT550A	7	2400 (2880)
NT1050A	11	3940 (4340)
NT1250A	11	3940 (4340)

( ) is for 60Hz

