Quality is more than a word

ESPEC

Environmental Stress Chamber

AR series

CAT.NO.E09141-W1207

Advanced reliability
Environmental Stress Chambers for tomorrow's environmental testing needs

Achieving reliability requires a system that delivers results quickly
and reproduces environmental conditions accurately.
ESPEC's environmental stress Chamber can withstand heat loads generated by the specimen,
and achieves improved temperature rate of change in an expanded temperature and humidity range.
Each chamber is also equipped with a specimen temperature control function
to meet stringent testing demands typically required for automotive parts and mobile products.
ESPEC offers two temperature control ranges: −75℃ to +180℃ or −45℃ to +180℃,
with or without humidity control (10 to 98% rh).
These models incorporate the most desirable features in temperature and humidity chambers.

ARS-0220

ARS-1100

*Viewing window is optional.

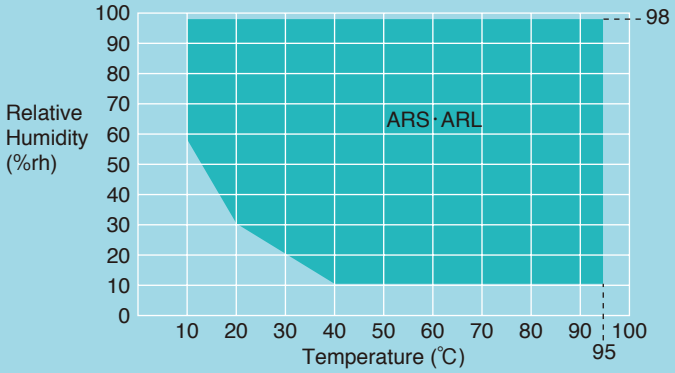
Characteristics

Temperature rate of change

Model	Heat up (K/min.)	Pull down (K/min.)
ARL/ARU-0680	6.3	4.8
ARL/ARU-1100	4.7	4.4
ARS/ARG-0220	6.0	5.2
ARS/ARG-0390	5.0	4.0
ARS/ARG-0680	6.0	4.2
ARS/ARG-1100	4.7	4.1

＊At ambient temperature, +20℃ no specimen.

Temperature & Humidity Control Range
(ambient temperature at +20℃ with no load)



＊Continuous operation at or below +40℃ is limited because of frost formation on the cooler and dehumidifier.

Terminal area (including option)

Superior temperature heating and cooling control at 3℃/min. with specimen load

Features temperature heating and cooling performance at 4 to 6℃/min. (no load), and can handle temperature cycle tests at 3℃/min. (with load)

Highly uniform temperature distribution

Highly uniform temperature distribution minimizes variations in test results over multiple specimens.

Reduced temperature and humidity stabilization time

Temperature and humidity stabilization time have been greatly reduced by minimizing hunting as the chamber approaches set-point. (under testing operation from RT to 85℃/85% rh).

Wider control range for temperature and humidity

Features a wider control range of temperature and humidity, including stable control at 95℃/98% rh.

Network solution

Standard communication support is available with RS-485 or RS-232C interface.
An Ethernet (LAN) port is available as an option, for simple connection of a computer, tablet computer, or other terminal. Monitoring of chamber's running conditions, modification of test conditions, starting or stopping operation, and other interaction with the chamber can be performed via a Web browser.

Characteristics

Supports heat loads up to 4500W (During temperature testing)

Supports electrically-charged specimens, and can withstand up to 4500W of heat load during temperature testing, depending on the chamber model (500W during temperature and humidity testing).

User-friendly features

Cable ports on both sides allow free access of the test area, water supply via the standard water tank and pure water service connections, large-sized casters, and an 18-8 Cr-Ni stainless steel plate exterior for resistance against rust and oil are some of the standard equipped features.

Meets International standards

Designed to comply with major environmental test standards such as IEC60068 (2-1.2.3.14.30.38.78), or ISO16750-4 (5.3).
(Refer to compatible test standards below)

International safety standards

The AR Series conform to safety standards ISO12100-1, -2, and ISO14121; also to CE marking requirements based on EU directives: Low voltage directive, EMC directive, machinery directive, and pressure equipment directive.
(Refer to specification pages for compatible models)

Cable ports on both sides

Water tank

Compatible Test Standards

- IEC60068 2-1: Cold
- IEC60068 2-2: Dry heat
- IEC60068 2-3: Damp heat, steady state
- IEC60068 2-14 Nb: Change of temperature with specified rate of change *1
- IEC60068 2-30: Damp heat, cyclic (12+12h cycle) *1
- IEC60068 2-38: Composite temperature/ humidity cyclic test *2
- IEC60068 2-78: Damp heat, steady state
- ISO16750-4 5.3: Temperature cycling

*1 Except ARU, ARG
*2 Except ARS-0390, ARU, ARG

Characteristics

Instrumentation

● **Programming detail monitor**

● **Program control settings**

● **Specimen temperature control settings**

● **Service guide**

● Color LCD interactive touch-screen system

Operation and settings simplified by the use of a touch-screen LCD display (instructions displayed on-screen). At-a-glance confirmation of test patterns, test area temperatures, temperature cycles, upstream / downstream control, and trend graphs display.

● Specimen temperature control function provides accurate testing

Uses a temperature control sensor (×1) to monitor and control the temperature of the specimen.

● Alarm buzzers and displays

When an alarm triggers, alarm information, date and time of occurrence are displayed on screen. A second screen displays the cause and corrective actions.

● Built-in timer functions

Built-in timer functions enable automatic start-up or shut down of the chamber at preset times. The timer can be preset by month, date, day, and hour.

SERIES

Model	Temperature	Humidity	Capacity
ARL Temperature & Humidity Chamber	−45 to +180℃	10 to 98%rh (+10 to +95℃)	Type1: 680L Type2: 1100L
ARS Temperature & Humidity Chamber	−75 to +180℃		Type1: 220L Type2: 390L Type3: 680L Type4: 1100L
ARU Temperature Chamber	−45 to +180℃		Type1: 680L Type2: 1100L
ARG Temperature Chamber	−75 to +180℃		Type1: 220L Type2: 390L Type3: 680L Type4: 1100L

ARL

−45 to +180℃ • 10 to 98%rh

TEMPERATURE & HUMIDITY CHAMBER

Model				ARL-0680	ARL-1100
System				Balanced Temperature & Humidity Control (BTHC) system	
Temp. performance *1	Temp. range			−45 to +180℃ (−49 to +356℉)	
	Temp. fluctuation			±0.3K	
	Temp. gradient			3.0K	
	Temp. variation in space			3.0K	
	Temp. rate of change *2		Heat up rate	6.3 K/min.	4.7 K/min.
			Pull down rate	4.8 K/min.	4.4 K/min.
	Max. allowable heat load			4500 W Test area temperature: +20℃	
Temp. & humid. performance *1	Temp. & humid. range			+10 to +95℃ / 10 to 98% rh	
	Humid. fluctuation			±2.5%rh	
	Max. allowable heat load			500 W Test area conditions: +85℃ /85%rh	
Construction	Exterior material			18 Cr-stainless steel plate (Hairline finish)	
	Test area material			18-8 Cr-Ni Stainless steel plate (BA finish)	
	Insulation			Foamed phenol, glass wool	
	Heater			Nichrome strip wire heater (3 kW×2)	
	Humidifier			Sheathed heater	
	Cooler			Plate fin cooler and dehumidifier	
	Refrigeration unit	System		Mechanical single-stage refrigeration system	
		Refrigerator		Scroll-type compressor	
		Refrigerator capacity		3.0 kw	3.75 kw
		Expansion mechanism		Electronic expansion valve	
		Refrigerant		R404A	
	Air circulator			Sirocco fan	
Interface				RS-485, RS-232C (selection)	
Fittings				Cable port ID ϕ 100mm (right side), ϕ 50mm (left side), specimen power supply control terminal, specimen temperature input terminal, time signal (×2), casters (×4), levelling feet (×4)	
Capacity				680 L	1100 L
Chamber total load resistance				80 kg	150 kg
Inside dimensions mm (inch) *3				W850×H1000×D800 (W33.5×H39.4×D31.5)	W1100×H1000×D1000 (W43.3×H39.4×D39.4)
Outside dimensions mm (inch) *3				W1050×H1955×D1805 (W41.3×H77.0×D71.1)	W1300×H1955×D2005 (W51.2×H77.0×D78.9)
Weight				510 kg	600 kg
Utility requirements	Allowable ambient conditions			0 to +40℃ (+32 to +104℉) / 75%rh max.	
	Power supply *4	200V AC 3ϕ50/60Hz		53 A	56 A
		220V AC 3ϕ60Hz		49 A	52 A
		380V AC 3ϕ50Hz		23 A	25 A
		400V AC 3ϕ50Hz *5		22 A	23 A
Noise level *6				61 dB	62 dB
Exhaust heat quantity kJ/h (kcal/h)				32400 (7743)	39600 (9464)

*1: At ambient temperature +20℃, no specimen. Performance shown above conforms to IEC 60068-3-5:2001 / JTM K07:2007 and IEC 60068-3-6:2001 / JTM K09:2009.
*2: Temperature rate of change in the temperature range excluding ±10% of max/min. temperature.
*3: Excluding protrusions.
*4: Power supply voltage fluctuation to be ±10% of rated value.
*5: Conforms to CE marking based on EU directives.
*6: Measurements are to be taken in an anechoic room at a height of 1.2m from the floor and a distance of 1m from the chamber front panel (ISO 1996-1:2003 _ A-weighted sound pressure level).

ARS

−75 to +180℃ • 10 to 98%rh
TEMPERATURE & HUMIDITY CHAMBER

Model				ARS-0220	ARS-0390	ARS-0680	ARS-1100
System				Balanced Temperature & Humidity Control (BTHC) system			
Temp. performance *1	Temp. range			−75 to +180℃ (−103 to +356℉)			
	Temp. fluctuation			±0.3K			
	Temp. gradient			3.0K			
	Temp. variation in space			3.0K			
	Temp. rate of change *2		Heat up rate	6.0 K/min.	5.0 K/min.	6.0 K/min.	4.7K/min.
			Pull down rate	5.2 K/min.	4.0 K/min.	4.2 K/min.	4.1K/min.
	Max. allowable heat load			Test area temperature: +20℃ 3000 W		Test area temperature: +20℃ 4500 W	
Temp. & humid. performance *1	Temp. & humid. range			+10 to +95℃ / 10 to 98%rh			
	Humid. fluctuation			±2.5%rh			
	Max. allowable heat load			Test area conditions: +25 to +95℃ /90%rh 350 W	300 W	Test area conditions: +85℃ /85%rh 500 W	
Construction	Exterior material			18 Cr-stainless steel plate (Hairline finish)			
	Test area material			18-8 Cr-Ni Stainless steel plate (BA finish)			
	Insulation			Foamed phenol, glass wool			
	Heater			Nichrome strip wire heater (1.75 kW×2)		(3 kW×2)	
	Humidifier			Sheathed heater			
	Cooler			Plate fin cooler and dehumidifier			
	Refrigeration unit	System		Mechanical cascade and compression refrigeration system			
		Refrigerator		Rotary compressor		Scroll compressor	
		Refrigerator capacity		Unit 1: 2.2 kw ×1, Unit 2: 2.2 kw ×1		Unit 1: 3.0 kw ×1, Unit 2: 3.0 kw ×1	Unit 1: 3.75 kw ×1, Unit 2: 3.75 kw ×1
		Expansion mechanism		Electronic expansion valve			
		Refrigerant		R404A, R508A		R404A, R23	
	Air circulator			Sirocco fan			
Interface				RS-485, RS-232C (selection)			
Fittings				Cable port ID ϕ 100mm (right side), ϕ 50mm (left side), specimen power supply control terminal, specimen temperature input terminal, time signal (×2), casters (×4), levelling feet (×4)			
Capacity				220 L	390 L	680 L	1100 L
Chamber total load resistance				50 kg	80 kg	80 kg	150 kg
Inside dimensions mm (inch) *3				W700×H800×D400 (W27.6×H31.5×D15.8)	W700×H800×D700 (W27.6×H31.5×D27.6)	W850×H1000×D800 (W33.5×H39.4×D31.5)	W1100×H1000×D1000 (W43.3×H39.4×D39.4)
Outside dimensions mm (inch) *3				W900×H1742×D1455 (W35.4×H68.6×D57.3)	W900×H1742×D1705 (W35.4×H68.6×D67.1)	W1050×H1955×D1805 (W41.3×H77.0×D71.1)	W1300×H1955×D2005 (W51.2×H77.0×D78.9)
Weight				390 kg	405 kg	615 kg	700 kg
Utility requirements	Allowable ambient conditions			0 to +40℃ (+32 to +104℉) / 75%rh max.			
	Power supply *4	200V AC 3ϕ 50/60Hz		———	———	63 A	70 A
		220V AC 3ϕ 60Hz		38 A *5	38 A *5	58 A	64 A
		380V AC 3ϕ 50Hz		24 A *5	24 A *5	28 A	32 A
		400V AC 3ϕ 50Hz *5		23 A	23 A	27 A	29 A
Noise level *6				57 dB	58 dB	62 dB	63 dB
Exhaust heat quantity kJ/h (kcal/h)				26600 (6357)	26600 (6357)	39600 (9464)	46800 (11185)

*1: At ambient temperature +20℃, no specimen. Performance shown above conforms to IEC 60068-3-5:2001 / JTM K07:2007 and IEC 60068-3-6:2001 / JTM K09:2009.
*2: Temperature rate of change in the temperature range excluding ±10% of max/min. temperature.
*3: Excluding protrusions.
*4: Power supply voltage fluctuation to be ±10% of rated value.
*5: Conforms to CE marking based on EU directives.
*6: Measurements are to be taken in an anechoic room at a height of 1.2m from the floor and a distance of 1m from the chamber front panel (ISO 1996-1:2003 _ A-weighted sound pressure level).

ARU

−45 to +180℃
TEMPERATURE CHAMBER

Model				ARU-0680	ARU-1100
System				Balanced Temperature Control (BTC) system	
Temp. performance *1	Temp. range			−45 to +180℃ (−49 to +356℉)	
	Temp. fluctuation			±0.3 K	
	Temp. gradient			3.0 K	
	Temp. variation in space			3.0 K	
	Temp. rate of change *2		Heat up rate	6.3 K/min.	4.7 K/min.
			Pull down rate	4.8 K/min.	4.4 K/min.
	Max. allowable heat load			4500 W Test area temperature: +20℃	
Construction	Exterior material			18 Cr-stainless steel plate (Hairline finish)	
	Test area material			18-8 Cr-Ni Stainless steel plate (BA finish)	
	Insulation			Foamed phenol, glass wool	
	Heater			Nichrome strip wire heater (3kW ×2)	
	Cooler			Plate fin cooler	
	Refrigeration unit	System		Mechanical single-stage refrigeration system	
		Refrigerator		Scroll-type compressor	
		Refrigerator capacity		3.0 kw	3.75 kw
		Expansion mechanism		Electronic expansion valve	
		Refrigerant		R404A	
	Air circulator			Sirocco fan	
Interface				RS-485, RS-232C (selection)	
Fittings				Cable port ID φ100mm (right side), φ50mm (left side), specimen power supply control terminal, specimen temperature input terminal, time signal (×2), casters (×4), levelling feet (×4)	
Capacity				680 L	1100 L
Chamber total load resistance				80 kg	150 kg
Inside dimensions mm (inch) *3				W850×H1000×D800 (W33.5×H39.4×D31.5)	W1100×H1000×D1000 (W43.3×H39.4×D39.4)
Outside dimensions mm (inch) *3				W1050×H1955×D1805 (W41.3×H77.0×D71.1)	W1300×H1955×D2005 (W51.2×H77.0×D78.9)
Weight				505 kg	595 kg
Utility requirements	Allowable ambient conditions			0 to +40℃ (+32 to +104℉) / 75%rh max.	
	Power supply *4	200V AC 3φ50/60Hz		53 A	56 A
		220V AC 3φ60Hz		49 A	52 A
		380V AC 3φ50Hz		23 A	25 A
		400V AC 3φ50Hz *5		22 A	23 A
Noise level *6				61 dB	62 dB
Exhaust heat quantity kJ/h (kcal/h)				32400 (7743)	39600 (9464)

*1: At ambient temperature +20℃, no specimen. Performance shown above conforms to IEC 60068-3-5:2001 and JTM K07:2007.
*2: Temperature rate of change in the temperature range excluding ±10% of max/min. temperature.
*3: Excluding protrusions.
*4: Power supply voltage fluctuation to be ±10% of rated value.
*5: Conforms to CE marking based on EU directives.
*6: Measurements are to be taken in an anechoic room at a height of 1.2m from the floor and a distance of 1m from the chamber front panel (ISO 1996-1:2003 _ A-weighted sound pressure level).

ARG

−75 to +180℃

TEMPERATURE CHAMBER

Model				ARG-0220	ARG-0390	ARG-0680	ARG-1100
System				Balanced Temperature Control (BTC) system			
Temp. performance *1	Temp. range			−75 to +180℃ (−103 to +356℉)			
	Temp. fluctuation			±0.3 K			
	Temp. gradient			3.0 K			
	Temp. variation in space			3.0 K			
	Temp. rate of change *2		Heat up rate	6.0 K/min.	5.0 K/min.	6.0 K/min.	4.7K/min.
			Pull down rate	5.2 K/min.	4.0 K/min.	4.2 K/min.	4.1K/min.
	Max. allowable heat load			Test area temperature: +20℃			
				3000 W		4500 W	
Construction	Exterior material			18 Cr-stainless steel plate (Hairline finish)			
	Test area material			18-8 Cr-Ni Stainless steel plate (BA finish)			
	Insulation			Foamed phenol, glass wool			
	Heater			Nichrome strip wire heater			
				(1.75 kW×2)		(3 kW×2)	
	Cooler			Plate fin cooler			
	Refrigeration unit	System		Mechanical cascade refrigeration system		Mechanical single-stage refrigeration system	
		Refrigerator		Scroll-type compressor			
		Refrigerator capacity		Unit 1: 2.2 kw ×1, Unit 2: 2.2 kw ×1		Unit 1: 3.0 kw ×1, Unit 2: 3.0 kw ×1	Unit 1: 3.75 kw ×1, Unit 2: 3.75 kw ×1
		Expansion mechanism		Electronic expansion valve			
		Refrigerant		R404A, R508A		R404A, R23	
	Air circulator			Sirocco fan			
Interface				RS-485, RS-232C (selection)			
Fittings				Cable port ID ϕ 100mm (right side), ϕ 50mm (left side), specimen power supply control terminal, specimen temperature input terminal, time signal (×2), casters (×4), levelling feet (×4)			
Capacity				220 L	390 L	680 L	1100 L
Chamber total load resistance				50 kg	80 kg	80 kg	150 kg
Inside dimensions mm (inch) *3				W700×H800×D400 (W27.6×H31.5×D15.8)	W700×H800×D700 (W27.6×H31.5×D27.6)	W850×H1000×D800 (W33.5×H39.4×D31.5)	W1100×H1000×D1000 (W43.3×H39.4×D39.4)
Outside dimensions mm (inch) *3				W900×H1742×D1455 (W35.4×H68.6×D57.3)	W900×H1742×D1705 (W35.4×H68.6×D67.1)	W1050×H1955×D1805 (W41.3×H77.0×D71.1)	W1300×H1955×D2005 (W51.2×H77.0×D78.9)
Weight				385 kg	400 kg	615 kg	700 kg
Utility requirements	Allowable ambient conditions			0 to +40℃ (+32 to +104℉) / 75%rh max.			
	Power supply *4	200V AC 3ϕ 50/60Hz		———	———	63 A	70 A
		220V AC 3ϕ 60Hz		38 A *5	38 A *5	58 A	64 A
		380V AC 3ϕ 50Hz		24 A *5	24 A *5	28 A	32 A
		400V AC 3ϕ 50Hz *5		23 A	23 A	27 A	29 A
Noise level *6				57 dB	58 dB	62 dB	63 dB
Exhaust heat quantity kJ/h (kcal/h)				26600 (6357)	26600 (6357)	39600 (9464)	46800 (11185)

*1: At ambient temperature +20℃, no specimen. Performance shown above conforms to IEC 60068-3-5:2001 and JTM K07:2007.
*2: Temperature rate of change in the temperature range excluding ±10% of max/min. temperature.
*3: Excluding protrusions.
*4: Power supply voltage fluctuation to be ±10% of rated value.
*5: Conforms to CE marking based on EU directives.
*6: Measurements are to be taken in an anechoic room at a height of 1.2m from the floor and a distance of 1m from the chamber front panel (ISO 1996-1:2003 _ A-weighted sound pressure level).

CONTROLLER

Setting	Interactive key input by touch panel
Display	TFT Color LCD (6.5 inch)
Operating mode	Program operation, constant operation
Setting range	Temperature: −80℃ to +185℃ (ARS, ARG) −50℃ to +185℃ (ARL, ARU) Humidity: 0 to 100% rh (ARL, ARS) Time: 0 to 999 hours 59 minutes
Setting resolution	Temperature: 0.1℃ Humidity: 1% rh (ARL, ARS) Time: 1 minute
Input	Thermocouple type T (Copper/Copper-Nickel)
Program memory capacity	RAM programs: 20 (・99 steps per program ・Pattern linking possible) ROM programs: 10
Auxiliary functions	Chamber/ specimen temperature control selection Trend graph Target temperature status Refrigerator capacity automatic control Time signal Integrating hour meter (non-resettable, resettable) Specimen temperature control setting Sensor offset Exposure time control Pausing Complete time display Test completion mode selection Input burn-out detection Upper and lower temperature (and humidity) limit alarm Alarm and alarm history display Backup operation Power failure / recovery operation Automatic and manual drainage (ARL, ARS) Constant humidity measurement (ARL, ARS) Timer (automatic start-up and stop) Help feature

SHELVES SIZE AND LOAD RESISTANCE

Model	0220	0390	0680	1100
Shelf size (mm)	W667 D350	W667 D650	W817 D750	W1067 D950
Shelf weight	2 kg	3 kg	6 kg	12 kg
Shelf load capacity (evenly distributed load)	30 kg	30 kg	40 kg	50 kg
Shelf support max. load (Including shelf weight)	50 kg	80 kg	80 kg	100 kg

SAFETY DEVICES

- Control circuit overcurrent protection
- Control circuit short circuit protection cartridge fuse
- System error
- Reverse-prevention relay
- Thermal fuse
- Temperature switch for air circulator
- Air circulator short circuit protection
- Ambient temperature input burn-out detection circuit
- Dry-bulb temperature input burn-out detection circuit
- Specimen temperature input burn-out detection circuit (only when using specimen temperature control)
- Condenser fan short circuit protection
- Condenser fan overload protection
- Refrigerator temperature sensor burned detect circuit
- Refrigerator short circuit protection
- Refrigerator overcurrent protection
- Refrigerator discharge pipe temperature switch (0680/1100)
- Refrigerator high (low) pressure switch
- Refrigerator frost detection cicuit (0680/1100)
- Refrigerator circuit temperature range over
- Refrigerator frost trouble detection temperature switch (ARS-0680/1100, ARG-0680/1100)
- Refrigerator discharge pipe temperature trouble detection circuit (ARS, ARG)
- Heater (humidifier) leak current protection
- Wet bulb temperature input burnout detection circuit (ARL, ARS)
- Humidifier boil-dry protector (ARL, ARS)
- Humidifier water level detector (ARL, ARS)
- Water tank empty switch (ARL, ARS)
- Water tank low level switch (ARL, ARS)
- Dry wick detection (ARL, ARS)
- Overheat protector
- High deviation temperature alarm (built into temperature and humidity controller)
- High/ low absolute temperature (humidity) alarms (built into temperature and humidity controller)
- Specimen power supply control terminal
- Chamber door switch

ACCESSORIES

- Cable port rubber plug (ϕ50 mm, ϕ100 mm) ..... 1 each
- Shelf brackets ..... 1 set
  stainless steel plate (18-8 Cr-Ni stainless steel)
- Shelf 1
  stainless steel wire (18-8 Cr-Ni stainless steel)
- Cartridge fuse (Class A, 250 V 0.4 A, 5 A, 8 A) ..... 1 each
- Wet-bulb wick (ARL, ARS) ..... 1 box (24 wicks)
- Specimen temperature measuring thermocouple (type T, 3m) 1
- Specimen temperature input connector 1
- Operation manual 1

Paperless recorder - portable type

Records temperature of each section such as the temperature inside the chamber.
[Temperature type]
Temperature range: −100 to +200℃
Number of inputs: Temperature 1
(5 more channels can be turned ON)
Data saving cycle: 5 sec.
External recording media:
CF memory card (256MB)
USB port
Language support: ENG, JPN
[Temperature and humidity type]
Temperature range: −100 to +200℃
Humidity range: 0 to 100% rh
Number of inputs:
Temperature 1 / Humidity 1
(4 more channels can be turned ON)
Data saving cycle: 5 sec.
External recording media:
CF memory card (256MB)
USB port
Language support: ENG, JPN

Temperature recorder (digital)

Portable type
SRJ25: −100 to +200℃ 6 dots

Temperature and humidity recorder (digital)

Portable type
SRJ15: −100 to +200℃ / 0 to 100%rh
6 dots

Temperature sensor terminal

Terminal board for dry-bulb temperature sensor in the chamber.

DC output terminal

Outputs temperature, humidity, and temperature of the specimen from the test area.

Relay contact output

Up to 8 contacts can be added to the standard 2 relay contacts (time signals).

Additional cable port

Provided in addition / replacement of the standard cable ports.
・50 mm diameter
・100 mm diameter
* Each cable port is equipped with a silicone sponge rubber plug.

Cable port rubber plug

Prevents air leakage from the cable port.

Humidifier delay control

To protect specimens from condensation, humidity control starts after temperature reaches the set value.
*ARL, ARS only

OPTIONS

Viewing window

Used for observation of the specimens inside the chamber.
Dimensions: W340×H440 mm

Shelf, shelf bracket

Equivalent to standard accessory.

Heavy-duty shelf

Used to hold heavy specimens exceeding the load capacity of the standard shelf.
Load capacity: 50kg (max. 2 shelves)
*Standard for 1100L model

Condenser filter

Prevents condenser fins from clogging.

External alarm terminal

If the safety device of the chamber is activated, the external alarm terminal will notify it to a remote point.

Trouble buzzer

If a trouble occurs, the buzzer will alert you of the situation.

Emergency stop switch

Stops the chamber immediately.

200V AC, 220V AC spec.

380V AC, 400V AC spec.

Additional overheat protector

Additional preventive measures can be taken for excessive temperature rise in the chamber, in addition to the standard equipped overheat protector.

Overcool protector

If the temperature inside the chamber decreases excessively, the chamber stops operating to prevent the specimens from being damaged.

Rotating signal lamp

The lamp lights up when alarm triggers. (Available in red or yellow)

OPTIONS

Water purifier (WS-1)

Water purifier with reverse osmosis membrane. Produces approx 6.6L per hour (at primary water temp. +10℃).

When installing chamber on upper floor with water purifier, a water leak detector (sold separately) is recommended to be equipped in case water leaks.

Portable tank

Used to refill the standard tank.
*ARS, ARL only

Web function Ethernet port

It is an embedded server solution that allows monitoring and programming chamber via any computer, tablet computer, or other terminal.
*Select instead of RS-485, RS-232C or GPIB

Interface

Computer interface
・GPIB
*Select instead of standard RS-485 or RS-232C

Communication cables

・RS-485 5m/ 10m/ 30m
・RS-232C 1.5m/ 3m/ 6m
・GPIB 2m/ 4m

Power cable

・2.5 m
・5 m
・10m
*The chamber does not come with a power cable.

Operation manual

・CD
・Booklet

Safety precautions

- Do not use specimens which are explosive or inflammable, or which contain such substances.
  To do so could be hazardous, as this may lead to fire or explosion.
- Do not place corrosive materials in the chamber.
  If corrosive substances or liquid is used, the life of the unit may be significantly shortened specifically because of the corrosion of stainless steel, resin and silicone materials.
- Do not use living organisms or items that exceed the allowable heat load as a specimen.
- Be sure to read the operation manual before operation.

Please contact us for non-standard specification.

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UKAS ENVIRONMENTAL MANAGEMENT 051

ISO 9001/JIS Q 9001
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