

Thermal Shock Chambers

Thermal Shock Chambers Overview:

KOMEG thermal shock chambers meet the demands of today's environmental stress screening with proven performance in installations around the world. Our direct transfer method between hot and cold is an economical method to achieve rapid part temperature change for ESS or thermal shock.

Thermal shock test chamber is requisite testing equipment in metal, plastic, rubber, electronics and other industries. It is used for testing the material structure or composite material's tolerance degree when exposed instantly in extremely high temperature and extremely low temperature environment continuously, so that whose chemical or physical damage due to thermal expansion and contraction can be detected in shortest time.

3-Zone Thermal Shock Chambers Working Principle:

The three-zone type thermal shock test chamber. Sample is placed in the test chamber, more extreme temperature than test temperature can be set in high-temperature chamber and low-temperature chamber. During low temperature test, cold chamber door open, and low-temperature chamber working together with test chamber. When converted into high-temperature test, cold chamber door closed, hot chamber door are opened, and test chamber working together with high-temperature chamber.

Conversion of mechanical action (transferring from high temperature to low temperature or low temperature to high temperature) can be completed in less than 1 second, and the temperature can be quickly stabilized.

During the whole test, test sample is no need to be moved, and without any human intervention.

Below are differences between 3-zone and 2-zone thermal shock chamber:

3-zone thermal shock chamber:

three chamber in total: test space, high temp. chamber and low temp. chamber;

Advantage: slight limitation for test sample's weight, the test sample keep still, this can reduce the impact to samples by moving it, can be used for on-load testing.

Compared with 2-zone type, relatively low failure rate, low cost.

Disadvantage: long conversion time

2-zone thermal shock chamber:

only two chambers: high temp. Chamber and low temp. chamber

Advantage: short conversion time, smaller space needed

Disadvantage: test sample moving. test samples' size is limited by the basket size



3 Zone Thermal Shock Test Chamber

Specifications		Note:1. We reserve the right to change specifications without prior notice 2. Customized sizes and configurations available						
Model		KTS-A Series						
		72A	100A	150A	200A	252A	300A	480A
Interior size	W(mm)	450	500	600	670	700	800	800
	H(mm)	400	450	500	600	600	600	800
	D(mm)	400	450	500	500	600	650	750
Exterior size	W(mm)	1490	1540	1640	1720	1750	1850	1850
	H(mm)	1790	1840	1890	2000	2000	2000	2200
	D(mm)	1600	1700	1830	1850	1930	1980	2500
Test weight(KG)		5	10	12	15	18	20	20
Low Temp. chamber		-55°C~-10°C						
Pre-heat time		+20°C~-55°C ,Within 60 min						
Test. chamber		-40°C~+150°C						
High Temp. chamber		+60°C~+200°C						
Pre-heat time		+60°C~+200°C ,Within 20 min						

Recovery time	High-Temp Exposure 30 min
	Low-Temp Exposure 30 min
	Recovery time within 5 min
Safety device	No fuse breaker, over pressure\over heat and over current protection for compressor,over temperature protection, over load protection for blower, dry heat protection
Standard accessory	Cable port(portΦ50mm)*1, shelves*2
Interior material	Stainless steel plate(SUS 304)
Exterior material	Baked painting steel or stainless steel(SUS304)
Insulation material	Rigid polyurethane Foam+glass fiber wool
Refrigeration system	Water Cooled
	Semi-hermetic compressor, cascade refrigeration system, CFC free refrigerant(HFC-507 and HFC-23)
Controller	Panel:7-inch LCD Touch panel,Chinese or English display selectable
	Operation model:Program or fix point running
	Memory capacity:120programs,1200steps,all repeat 999cycles,part repeat 99 cycles.
	Accuracy:Temp.:0.1% of F.S±1 digit Humidity:0.1% of F.S±1 digit
	Input:Temp.:pt-100 Humidity:pt-100 or ~5V DCV
Ambient Temp.	+5°C~+35°C
Power	AC 380±10%50Hz ,3 phase 4 wires +Ground Wires

Model		KTS-B Series						
		72B	100B	150B	200B	252B	300B	480B
Interior size	W(mm)	450	500	600	670	700	800	800
	H(mm)	400	450	500	600	600	600	800
	D(mm)	400	450	500	500	600	650	750
Exterior size	W(mm)	1490	1540	1640	1720	1750	1850	1850
	H(mm)	1790	1840	1890	2000	2000	2000	2200
	D(mm)	1600	1700	1830	1850	1930	1980	2500
Test weight(KG)		5	10	12	15	18	20	20
Low Temp. chamber		-70°C~-10°C						
Pre-heat time		+20°C~-70°C ,Within 60 min						
Test. chamber		-55°C~+150°C						
High Temp. chamber		+60°C~+200°C						
Pre-heat time		+60°C~+200°C ,Within 20 min						
Recovery time	High-Temp Exposure 30 min							
	Low-Temp Exposure 30 min							
	Recovery time within 5 min							
Safety device		No fuse breaker, over pressure\over heat and over current protection for compressor,over temperature protection, over load protection for blower, dry heat protection						
Standard accessory		Cable port(portΦ50mm)*1, shelves*2						

Interior material	Stainless steel plate(SUS 304)
Exterior material	Baked painting steel or stainless steel(SUS304)
Insulation material	Rigid polyurethane Foam+glass fiber wool
Refrigeration system	Water Cooled
	Semi-hermetic compressor, cascade refrigeration system, CFC free refrigerant(HFC-507 and HFC-23)
Controller	Panel:7-inch LCD Touch panel,Chinese or English display selectable
	Operation model:Program or fix point running
	Memory capacity:120programs,1200steps,all repeat 999cycles,part repeat 99 cycles.
	Accuracy:Temp.:0.1% of F.S±1 digit Humidity:0.1% of F.S±1 digit
Input:Temp.:pt-100 Humidity:pt-100 or ~5V DCV	
Ambient Temp.	+5°C~+35°C
Power	AC 380±10%50Hz ,3 phase 4 wires +Ground Wires

Model		KTS-D Series					
		72D	100D	150D	200D	252D	300D
Interior size	W(mm)	450	500	600	670	700	800
	H(mm)	400	450	500	600	600	600
	D(mm)	400	450	500	500	600	650
Exterior size	W(mm)	1490	1540	1640	1720	1750	1850
	H(mm)	1790	1840	1890	2000	2000	2000
	D(mm)	1600	1700	1830	1850	1930	1980
Test weight(KG)		5	10	12	15	18	20
Low Temp. chamber		-80°C~-10°C					
Pre-heat time		+20°C~-80°C ,Within 60 mins					
Test. chamber		-65°C~+150°C					
High Temp. chamber		+60°C~+200°C					
Pre-heat time		+60°C~+200°C ,Within 20 min					
Recovery time		High-Temp Exposure 30 min					
		Low-Temp Exposure 30 min					
		Recovery time within 5 min					
Safety device		No fuse breaker, over pressure\over heat and over current protection for compressor,over temperature protection, over load protection for blower, dry heat protection					
Standard accessory		Cable port(portΦ50mm)*1, shelves*2					
Interior material		Stainless steel plate(SUS 304)					
Exterior material		Baked painting steel or stainless steel(SUS304)					
Insulation material		Rigid polyurethane Foam+glass fiber wool					
Refrigeration system		Water Cooled					
		Semi-hermetic compressor, cascade refrigeration system, CFC free refrigerant(HFC-507 and HFC-23)					

Controller	Panel:7-inch LCD Touch panel,Chinese or English display selectable
	Operation model:Program or fix point running
	Memory capacity:120programs,1200steps,all repeat 999cycles,part repeat 99 cycles.
	Accuracy:Temp.:0.1% of F.S±1 digit Humidity:0.1% of F.S±1 digit
	Input:Temp.:pt-100 Humidity:pt-100 or ~5V DCV
Ambient Temp.	+5°C~+35°C
Power	AC 380±10%50Hz ,3 phase 4 wires +Ground Wires

Features of Different Cooling Mode for thermal shock chambers:

Since the cold chamber need huge cooling capacity for shocking, the chamber’s cooling mode is often designed as air-cooled or water-cooled.

Air-cooled type need installation environment:

The room must be equipped with exhauster and air conditioner to make sure heat dissipation timely.

It’s applied to small power products and cool areas.

Water-cooled type need installation conditions:

The customer must prepare water pipe and water tower (located outside) accordingly. The water must be pure, or it will block the pipes and result in some maintenance trouble with time going.

It’s often applied to large system with the features of better heat dissipation, longer service time, low noise but slightly higher price if count the fee of water tower and water pipes.

Thermal Shock Test Chamber Features

- 1.3-zone design: high temperature zone, cold temperature zone, and testing zone.
- 2.The test specimens under test are stationary in the testing zone.
- 3.Touch-control operation interface for ease of use.
- 4.Max.999H and max.9999 cycles for high or low temperature shock for thermal shock test chamber.
- 5Automatic cycling shock or/and manual selective shock are available.
- 6.Water cooled, binary cooling system for quick cooling effect.
- 7.Japan imported Seamless Welding Machine, especially for copper pipe welding

KOMEK Thermal Shock Chambers’ Characteristics:

1.Heat preservation material, we use high-intensity PU foam and high density glass fiber cotton, which can assure high precise and better uniformity and avoid unnecessary energy loss. Meanwhile, our design can better assure personnel safety when operating a Walk-in Chamber.

2. Inner wall and housing material:

For small standard models, generally use inner wall of stainless steel #304 1.0mm, housing of stainless steel #304 1.2mm;

For bigger models, or some customized with special needs, we use inner wall of stainless steel #304 1.5 to 3.0mm, housing of stainless steel #304 over 1.5mm;

3. Material quality of inner box is SUS304 # mounted stainless steel imported, and outer box is steel plate and the paint process applies automobile coating technology. Box body is processed shape using Triumph processing machine, its shape is nice and neat.

4. Large-size Full Color LCD touchscreen displayer, simple operation, easy to edit programs. PID with automatic calculation function; self-diagnostic function, show failure message and failure shot solutions step by step.

5. An RS-232 and RS-485 communication interface, matching recorder, strong expandability. We also support remote control by PC via wifi or wire (recommended).

Packing Details:

We use PP Film wrapping the test chamber to protect the test chamber from moisture or being scratched first, then use strong plywood case for easyload and transport, and to keep the chambers from potential crash or impact.

After-sale Service:

If you face any problems in future during testing process we promise we will give you a reply within 48 hours and solution provide within 3 working days. We can offer operation video and English operation manual. We can provide video-conference. If customers require on-site service, the transport and travel expense shall be borne by customer.

Why Choose KOMEG?

Company information:

Being a first-class supplier and reliable partner, we are certified to ISO 9001 and got CE approval for all our products. All equipment are 7 x 24 hours tested before delivery. That explains why Komeg is the private brand of choice for many well-known brand enterprises, and also one of the very few designated suppliers who were recognized by many top 500 enterprises. Let Komeg's 26 years of professional experience work for you too.

1. Dedicate touch and excellent user experience
2. Unique and compact design, top grade appearance, stable performance and easy operation
3. Can simulate a wide range of temperature and humidity environments
4. Capable of testing large components, assemblies and finished products

5. Customized sizes and configurations available
6. One year warranties

Better Idea, Design and Quality

We strive for continuous innovation, releasing no less than five new designs each year. Our strong R&D team and skilled workers is the key to our success. No matter it is standard or custom-made project, we have rich experience in handling such so that customers worldwide can benefit more when working with us. And to ensure your specific test standards are met, the key components and parts we are using are imported famous brands. That's why SGS, Konica Minolta, Senko, Midea, TCL and Huawei are among our long-term clients.

Establish a cultural KOMEG, Build a century brand.

Quality conscious enterprise for quality conscious people.

We'd rather explain for the price than apologize for the Quality life long

Experienced and skilled staff;

High precision & reliability performance;

Prompt after-sale service;

Persist on the philosophy all the time

Besides this, we have a lot of other chamber for your reference:

3-zone/ 2-zone Thermal Shock Chamber

Walk-in Constant Temp. And Humidity Chamber

Rapid Temp. Change Chamber

Precise Drying Test Chamber

Temperature/ humidity/ vibration three integrated Chamber

Precise Drying Chamber

Vacuum oven/ no oxidation oven

Air Exchange Type Aging Oven

Burn-in Room

Salt spray Chamber

Vibration Testing Machine(mechanical and electromagnetic)

KOMEG Technology Industrial Co.,Ltd.

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Tel: +86-769-83971185 ext.110

Mobile: +86-13428616029

Email: fiona@komegtech.cn

Web: www.komegtech.com

Add: Building 12, Songshan Lake, Small and Medium-Sized Science and Technology Park, Dongguan, 523808, P.R.China