ENVIRONMENTAL TEST CHAMBERS

—

PRODUCT CATALOGUE

Good engineering is a pre-requisite for reliability

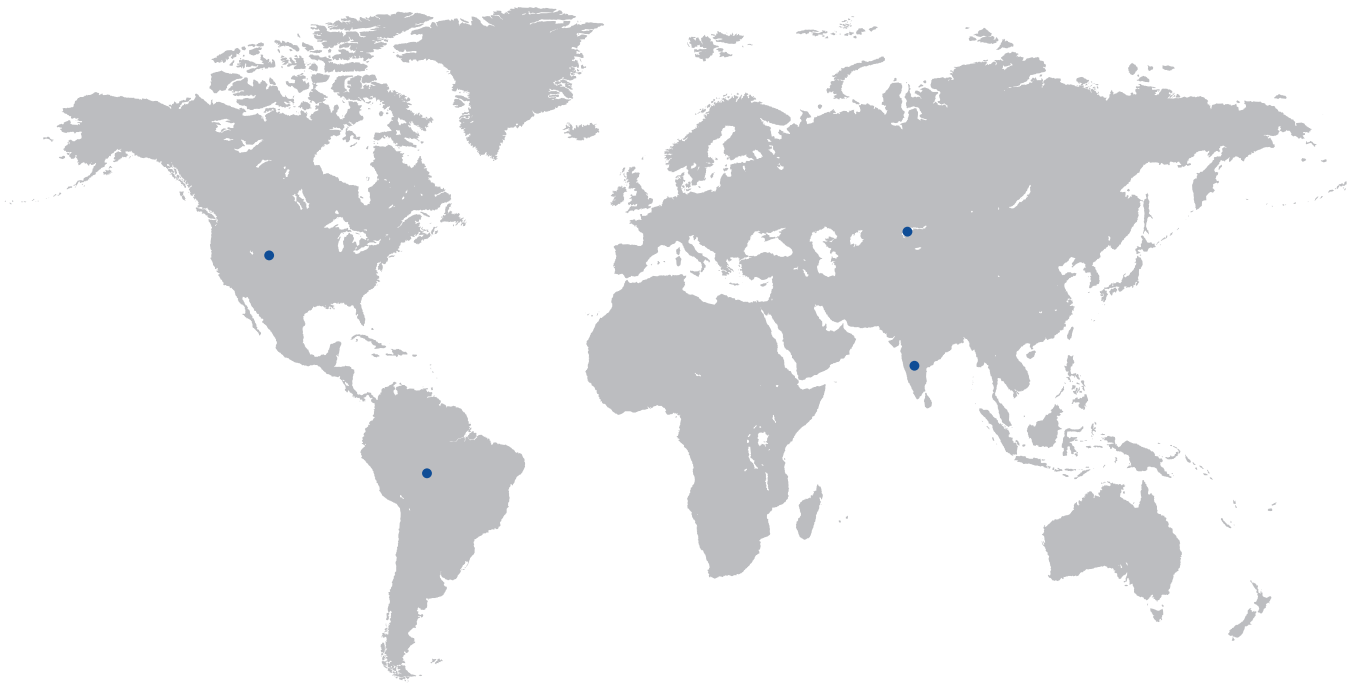
CME, or CM Envirosystems, is a leading engineering company specializing in environmental simulation testing technology. Based in Bengaluru, Karnataka, India, it is one of the fastest-growing manufacturers of environmental test chambers globally. Founded in 1981 by Dr. Jacob Crasta, the company designs and produces a wide range of testing equipment used to simulate real-world environmental conditions such as temperature, humidity, pressure, rain, dust, and corrosion. These chambers help ensure the reliability and durability of products across industries like aerospace, automotive, electronics, defense, and renewable energy.

PRESENCE

EUROPE
Hungary
Poland
Russia
Turkey
UK

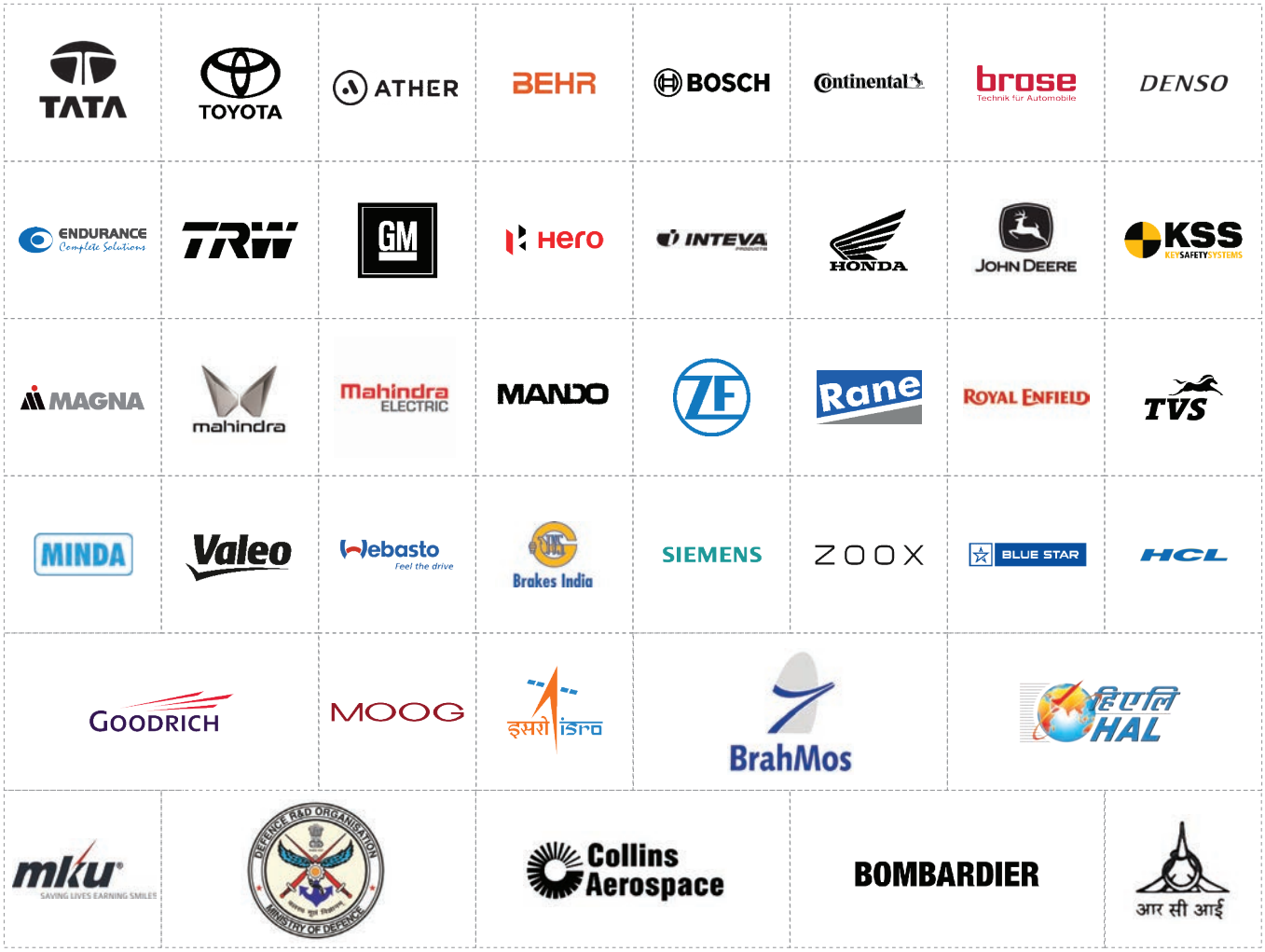
ASIA
India
Indonesia
Iran
Singapore
Thailand
Vietnam
UAE

NORTH AMERICA
Mexico
USA



OUR INFRASTRUCTURE & FACILITIES

Spread over 18,500 sqmtr a state-of-the-art manufacturing facility is a green building with over 40% of green cover, making the work atmosphere stress-free, efficient and productive.


TATA
TOYOTA
ATHER
BEHR
BOSCH
Continental
brose
Technik für Automobile
DENSO
ENDURANCE
Complete Solutions
TRW
GM
Hero
INTEVA
HONDA
JOHN DEERE
KSS
KEY SAFETY SYSTEMS
MAGNA
mahindra
Mahindra
ELECTRIC
MANDO
ZF
Rane
ROYAL ENFIELD
TVS
MINDA
Valeo
Webasto
Feel the drive
Brakes India
SIEMENS
ZOOX
BLUE STAR
HCL
GOODRICH
MOOG
इसरो
ISRO
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SAVING LIVES EARNING SMILES
DEFENCE R&D ORGANISATION
MINISTRY OF DEFENCE
Collins
Aerospace
BOMBARDIER
आर सी आई

THEY TRUST US

WALK-IN
CLIMATIC CHAMBER

ALTITUDE CHAMBER

BENCHTOP CHAMBER

RANGE OF PRODUCTS

While the methodology for environmental testing has not changed significantly over the years, there have been considerable technology additions and improvements to the systems. CME has recognized the importance of incorporating technologies that aid in improving performance, aesthetics, quality, and customer productivity.

CLIMATIC CHAMBER

THERMAL SHOCK CHAMBER

CORROSION TEST CHAMBER


Digital LED display for monitoring temperature
Stainless steel inner test space
Multipane vacuumaised viewing window with defog heaters
2 Entry port, Ø approx. 50 mm, l. h. side and 125mm, r,h. side
Height adjustable SS tray
Powder coated housing made of galvanised steel
SIMATIC programmable logic controller (PLC)
Envicom smart control. 7” touch screen, 16M colour wide screen. 2RS 232,1RS485 interfaces with USB port
Refrigeration unit
Specimen temperature safety tmin / tmax
Levelling Castors

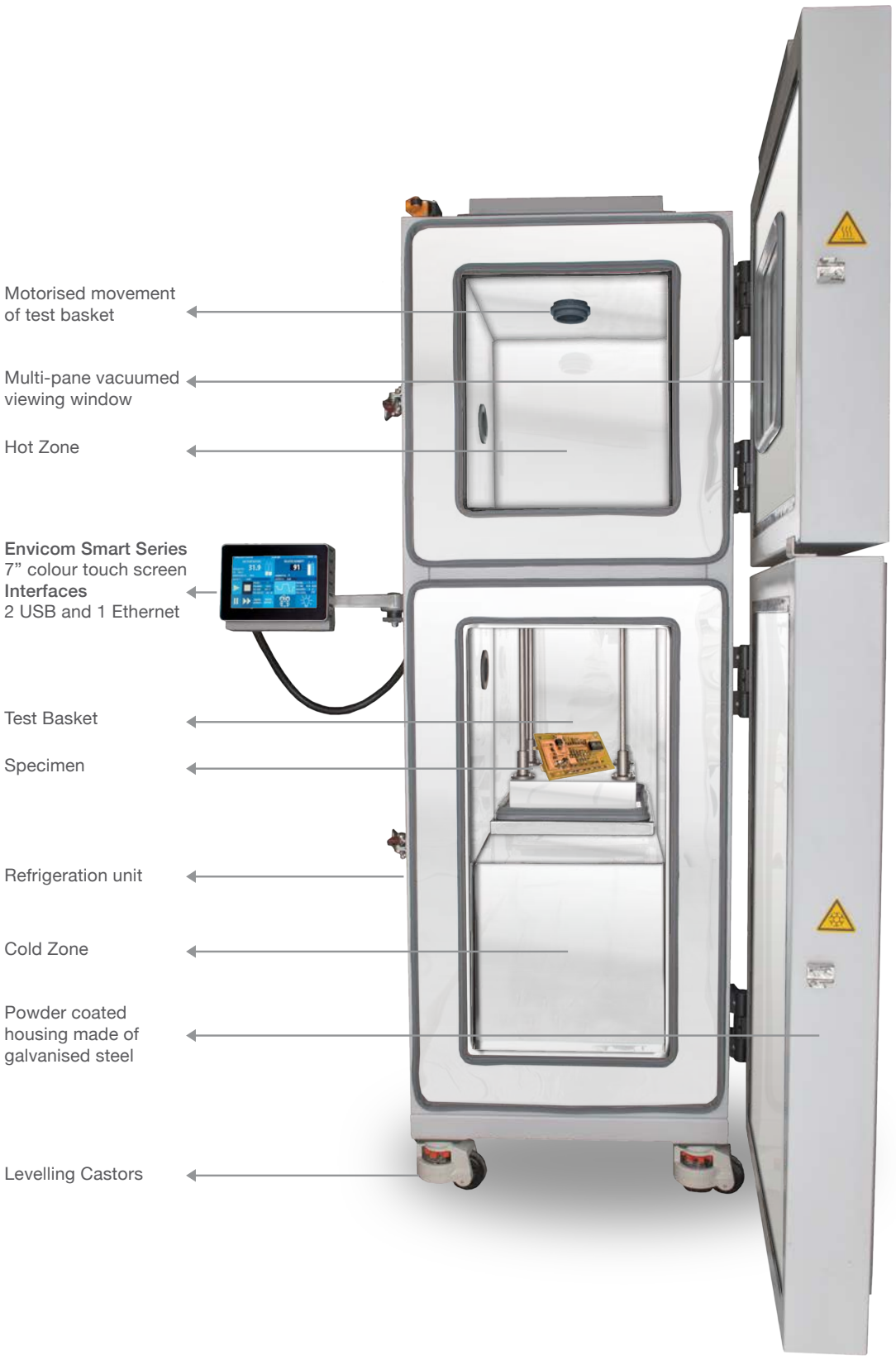
CLIMATIC CHAMBER

The PAC series of climatic chambers are a great choice for cyclic low, high temperature and humidity tests. Built with the highest quality and reliability, this chamber can meet the most stringent testing needs of various international standards such as ASTM, IEC, MIL, DIN, etc.

MODELS

Models		PAC 120	PAC 225	PAC 380	PAC 540	PAC 1000	PAC 1500
Test Space Volume **(Ltr)**		120 / 4.2	225 / 8	380 / 13.4	540 / 19	1000 / 35	1500 / 53
Temperature Range **(°C)**	**A**	-40 to +180 -40 to +356	-40 to +180 -40 to +356	-40 to +180 -40 to +356	-40 to +180 -40 to +356	-40 to +180 -40 to +356	-40 to +180 -40 to +356
	B	-70 to +180 -94 to +356	-70 to +180 -94 to +356	-70 to +180 -94 to +356	-70 to +180 -94 to +356	-70 to +180 -94 to +356	-70 to +180 -94 to +356
Ramp rate** **(°C/min)**		3/5/6/8/10/12/15/20/25 as per IEC 60068-3-5					

**Customized ramp rates are also available


Motorised movement of test basket
Multi-pane vacuumed viewing window
Hot Zone
Envicom Smart Series
7” colour touch screen
Interfaces
2 USB and 1 Ethernet
Test Basket
Specimen
Refrigeration unit
Cold Zone
Powder coated housing made of galvanised steel
Levelling Castors

THERMAL SHOCK CHAMBER

The KTS series of chambers are designed for the most stringent thermal shock tests such as MIL & IEC.

MODELS

Models	KTS 25-B2	KTS 64-B2	KTS 120-B2	KTS 340-B2
Test Basket Dimension (WXDXH)	250 x 250 x 400 [mm] 10 x 10 x 16 [In]	400 x400 x 400 [mm] 16 x 16 x 16 [In]	550 x 550 x 400 [mm] 22 x 22 x 16 [In]	700 x 700 x 700 [mm] 27.5 x 27.5 x 27.5 [In]
Test Basket Volume	25 Ltr / 0.9 Cuft	64 Ltr / 2.3 Cuft	120 Ltr / 4.2 Cuft	340 Ltr / 12 Cuft
Hot ZoneTemperature Range	50°C to + 200°C / 122°F to + 392°F			
Cold ZoneTemperature Range	50°C to - 70°C / 122°F to - 94°F			
Basket Transition	< 10 sec			
Recovery Time	< 5 min			


CME²

CORROSION TEST CHAMBER

The SF series of corrosion test chambers are designed to meet the requirements of all major international test standards.

MODELS

Models	SF-450	SF-1000
Test Space Dimensionswith Hood (wxdxh) mm	800 x 730 x 1300 [868 Ltrs]	1680 x 800 x 1400 [1678 Ltrs]
TTest Space Dimensionswith Hood (wxdxh) Inch	31.5 x 29 x 51 [30.6 Cuft]	66 x 31.5 x 55 [59.2Cuft]
Test Space Dimensionswithout Hood (wxdxh) mm	850 x 730 x 820 [519 Ltrs]	1680 x 800 x 890 [951 Ltrs]
Test Space Dimensionswithout Hood (wxdxh) Inch	33.5 x 29 x 32 [18.3 Cuft]	66 x 31.5 x 35 [33.6 Cuft]
Temperature Range °C	5 above ambient to 55	5 above ambient to 55
Temperature Range °F	41 above ambient to 131	41 above ambient to 131


Silicon gasket
Stainless steel inner test space
Height adjustable SS tray
Powder coated housing made of galvanized steel
Emergency stop
Envicom Graphite Series Controller
Refrigeration unit
CME

BENCHTOP CHAMBER

CME being one of the leading manufacturers of simulation systems offers the new NC Series chambers designed to meet all the renowned international test standards. The features like smaller footprint, lesser noise, wide temperature/ humidity range are only added value to its superior performance which delivers at any severe testing conditions.

MODELS

Models	NBT35	NBT80
Test Basket Dimension (WXDXH)	450 X 230 X 350	400 X 400 X 500
Test Space Dimension (WXDXH)(inch)	18 x 9 x 14	16 X 16 X 20
Test Space Volume (Ur/ Cutt)	35 l 1.2	80 l 2.8
Temperature Range [Single Stage (A)]	- 30 to +120 (°C) / -22 to +248 (°F)	
Temperature Range [Cascade Stage (B)]	- 60 to +120 (°C) / -76 to +248 (°F)	
	*Ramp rate as per requirement	

MODELS

Models	Walk-In Altitude Chamber	Rapid Decompression Vacuum Chamber
Size (mm)	3000 X 3000 X 3500	2000 X 2000 X 3000
Temperature Range	- 70°C to +180°C	- 70°C to +180°C
Altitude Range	10 mbar	
Humidity Range		10% to 95% RH
Door	Motorised sliding door	
Rapid Decompression		1 Torr in < 1 min

ALTITUDE CHAMBER

The AT series are specially designed for the testing of aerospace products which are exposed to high altitude conditions. These simulators operate in a wide range of temperature and altitude of up to 50km above sea level.

MODELS

Models	AT-225-B	AT-560-B	AT-1000-B	T-1500-B
Test Basket Dimension (WXDXH) mm	500 X 400 X 600	780 X 800 X 940	1000 X 1000 X 1000	1000 X 1500 X 1000
Test Basket Dimension (WXDXH) Inch	20 X 16 X 24	31 X 31 X 37	39 X 39 X 39	39 X 59 X 39
Test Space Volume (Ltr / Cuft)	225 l 8	560 l 20	1000 l 35.3	1500 l 53
Temperature Range (°C)	70 to +180			
Temperature Range (°F)	-76 to +248			
Ramp rate**(°C/min)	1/2/3/5/10/15/20			
Altitude range (mbar)	Upto 10, 1 [Optional]			
Altitude range (Ft)	Upto 100000, 150000 [Optional]			

* Optional Temperature Range also available
**Ramp rate as per requirement
GATH - Combined Altitude, Temperature and humidity chamber


29.0

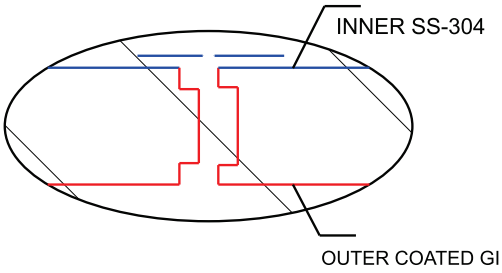
WALK-IN CHAMBER

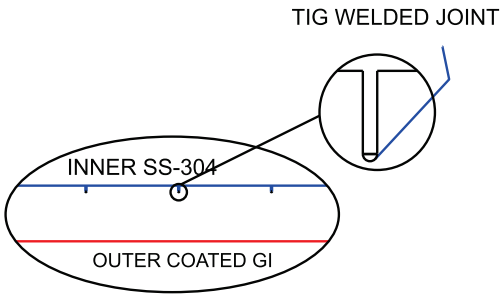
CME's Modular Walk-In chamber offers unmatched flexible installation. The panelised construction is engineered to perform at demanding testing conditions offering highest reliability and performance. Besides modular construction, we also offer Walk-In chamber made from welded rigid panels.

Types of Construction

MODULAR CONSTRUCTION

In the modular construction the panels are prefabricated as per our standard size range. The panels are interlocked through tongue and groove assembly offering quick installation in a shorter period. The testing condition for such construction normally depends on temperature range to making it one of the most commonly used construction in automotive industry.





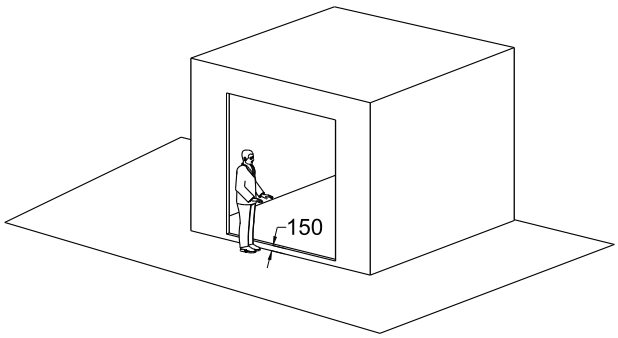
WELDED CONSTRUCTION

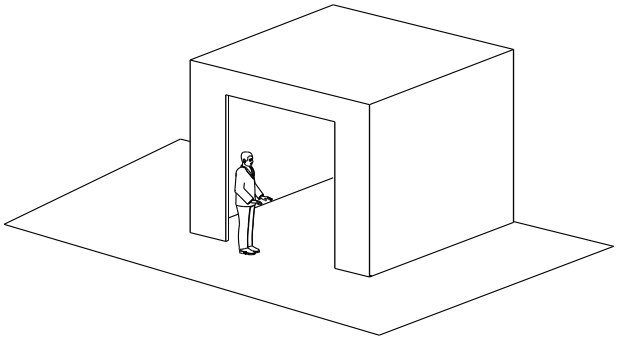
CME offers a different construction in its Walk-In Chamber. The panels are fabricated on site by welding it together forming a rigid structure which not only have the lowest heat loss but also are structurally so strong that it can withstand extreme environmental testing conditions.

Types of Flooring

STEP-IN FLOORING

The Walk-In chamber is built on an existing floor with insulation of 150 mm - 200 mm. Step-In flooring is ideal for those testing applications where the test specimen is light in weight and offer easy mobility in placing it inside the test space.





STEP-LESS FLOORING

For the whole vehicle testing or to conduct test on a heavier specimen, the Step Less flooring is used which offers easier driveability to the test space. The floor is made seamless by inserting wall panels which offers insulation from underneath.

INDUSTRIAL APPLICATION

CME has designed a wide variety of complex test chambers as per customer requirements.

Full Vehicle Test Chamber

Model	Walk-In Chamber
Test Space (W X DX H) (mm)	5000 X 7000 X 4000
Ramp Rate (°C/min)	15 - Heating/Cooling Rate without Load 0.5 - Heating/Cooling Rate with vehicle
Temperature Range (°C)	-20 to +85
Volume (L)	140000
Humidity Range (%RH)	10 to 95

MIL Standard Sand & Dust Test Chamber

Model	Custom Chamber
Wind Speed -Air Born Test	11.5 m/s to 8.9 m/s
Dust Density - Air Born Test	10g/m^3, +/- 7g/m^3
Temperature Range (°C)	+23 to +90
Humidity Range (%RH)	10 to 95
Test Standard	MIL-810-F/G - Procedure 1&2

Walk-In Climatic Test Chamber

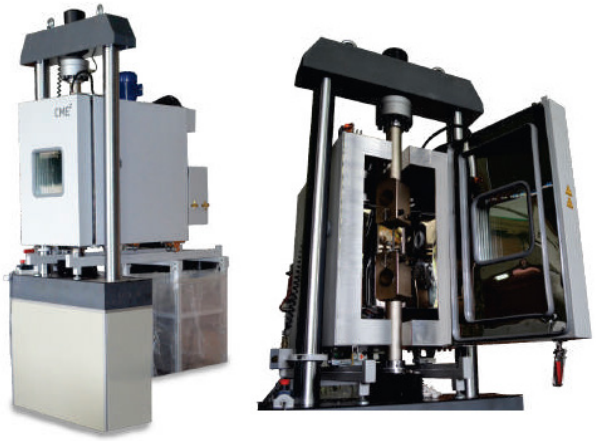
Model	Walk-In Climatic Test
Test Space (W X DX H) (mm)	3000 X 5000 X 3000
Ramp Rate (°C/min)	0.66
Temperature Range (°C)	-25 to +70
Volume (L)	45000
Humidity Range (%RH)	30 to 98
Live Load (KW)	40

Climatic Chamber with Vibration Integration

Model	Climatic Chamber
Test Space (W X DX H) (mm)	1000 X 1000 X 1000
Ramp Rate (°C/min)	5
Temperature Range (°C)	-70 to +180
Test Space Volume(L)	1000
Humidity Range (%RH)	10 to 98
Integration	Motorised horizontal & vertical movement for armature & slip table integration

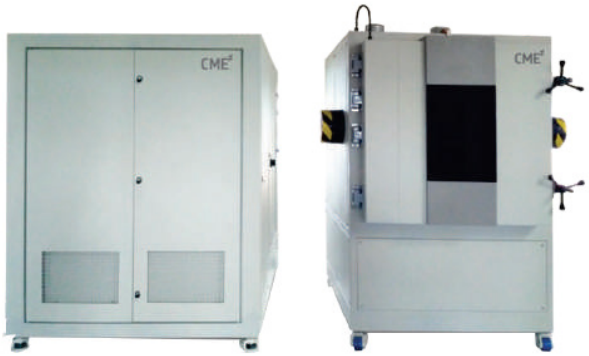
Horizontal Thermal Shock Chamber

Model	Thermal Shock Chamber
Test Space (W X DX H) (mm)	1200 X 900 X 800
Basket Transition Time	< 10 sec
Temperature Range (°C)	-70 to +180
Test Space Volume(L)	860
Basket Movement	Horizontal



Climatic Chamber with UTM Integration

Model	Climatic with UTM
Test Space (W X DX H) (mm)	350 X 300 X 500
Ramp Rate (°C/min)	1
Temperature Range (°C)	-70 to +90
Test Space Volume(L)	52.5
Integration	Test space mounted on telescopic rails for movement.



Aircraft Oxygen Control System Testing

Model	Oxygen System Testing
Workspace Dimensions (mm)	1000 X 1000 X 1000
WxDxH (In)	39 X 39 X 39
Volume (Ltr) / Cuft	1000 / 35
Temperature Range °C / °F	-70 To +180 / -94 To +356
Ramp Rates (°C/min)	5 [-55 to +85]
Altitude Range (mbar)	Atmospheric to 1

Climatic Chamber with Remote Refrigeration Unit

Model	Oxygen System Testing
Workspace Dimensions (mm)	1500 X 800 X 800
WxDxH (In)	59 X 31 X 31
Volume (Ltr) / Cuft	960 / 34
Temperature Range °C / °F	-70 To +180 / -94 To +356
Ramp Rates Cooling (°C/min)	3
Ramp Rates Heating (mbar)	3

Climatic Chamber with Remote Refrigeration Unit

Model	Oxygen System Testing
Workspace Dimensions (mm)	1200 X 5000 X 1200
WxDxH (In)	47 X 197 X 47
Volume (Ltr) / Cuft	7200 / 254
Temperature Range °C / °F	-50 To +80 / -58 To +176
Ramp Rates (°C/min)	3

UV Preconditioning Test Chamber for Solar Panels

After the fabrication of a high power photovoltaic (PV) module, the most critical aspect is the duration for which the module can produce useful power. Reliability and lifetime of photo-voltaic (PV) modules are key factors to system performance and warranty and thus are extremely important as far as PV business is concerned. Outdoor field testing is an accurate method in estimating module lifetime. However, since PV modules commonly come with twenty five years of warranty, testing modules in field for that long period is not feasible. Thus, due to time constraints, many accelerating aging tests have been derived over the years for testing reliability of PV modules. The accelerated test protocols established by organizations like IEC and UL have been adopted worldwide as official tests to evaluate module quality and reliability standards.

Damp Heat Test Chamber For Solar Panels

Thriving solar energy market and increasing competition has raised the reliability and performance standards for photovoltaic modules. Manufacturers must ensure their photovoltaic (PV) modules are robust, reliable and able to consistently deliver the guaranteed rated power even under more severe climactic conditions. CME's environmental chambers will tremendously help you in this process of developing a reliable PV modules /solar panels at fraction of cost.

Humidity Freeze Test Chamber For Solar Panels

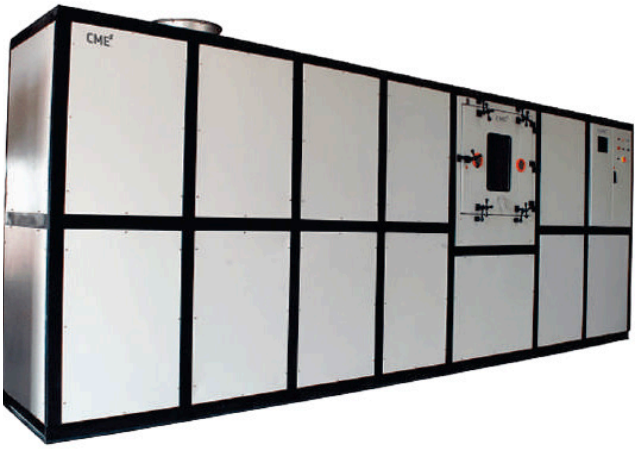
o determine the ability of the module to withstand the effects of high temperature and humidity followed by sub-zero temperatures. After the fabrication of a high power photovoltaic (PV) module, the most critical aspect is the duration for which the module can produce useful power. Reliability and lifetime of photo-voltaic (PV) modules are key factors to system performance and warranty and thus are extremely important as far as PV business is concerned. Outdoor field testing is an accurate method in estimating module lifetime. However, since PV modules commonly come with twenty five years of warranty, testing modules in field for that long period is not feasible. Thus, due to time constraints, many accelerating aging tests have been derived over the years for testing reliability of PV modules. The accelerated test protocols established by organizations like IEC and UL have been adopted worldwide as official tests to evaluate module quality and reliability standards.

Walk-In Climatic Chamber for Refrigerator Testing

Model	Refrigerator Testing
Workspace Dimensions (mm)	2200 X 3600 X 3200
WxDxH (In)	87 X 142 X 126
Volume (Ltr) / Cuft	25344 / 896
Temperature Range °C / °F	-15 To +50 / +5 To +122
Ramp Rates (°C/min)	0.2
Airflow in workspace (m/s)	0.5
Test Standard	JIS C 9607, JIS C 9801 IEC 62552, IS 15750-2006

MIL Standard Dust Test Chamber

Model	Refrigerator Testing
Workspace Dimensions (mm)	1000 X 1000 X 1000
WxDxH (In)	39 X 39 X 39
Volume (Ltr) / Cuft	1000 / 35
Temperature Range °C / °F	+23 To +90 / +73 To +194
Air Speed Procedure I	1.5m/s to 8.9 m/s
Air Speed Procedure II	18.0m/s to 29.0 m/s
Test Standard	MIL-810-F/G



Climatic Chamber with Remote Refrigeration Unit

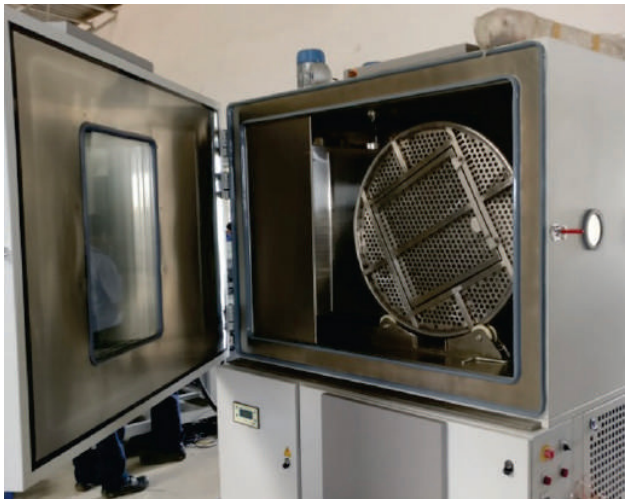
Model	Driverless Vehicle Testing
Workspace Dimensions (mm)	1500 X 3000 X 2400
WxDxH (In)	59 X 118 X 94
Volume (Ltr) / Cuft	10800 / 382
Temperature Range °C / °F	-40 To +90 / -40 To +194
Ramp Rates Cooling (°C/min)	1
Ramp Rates Heating (°C/min)	1

UV Preconditioning Test Chamber for Solar Panels

Model	UV Preconditioning
Workspace Dimensions (mm)	3000 X 2250 X 1100
WxDxH (In)	118 X 89 X 43
Volume (Ltr) / Cuft	7425 / 262
Temperature Range °C / °F	0 To +85 / +32 To +185
Ramp Rates - Heating (°C/min)	2
Ramp Rates - Cooling (°C/min)	2
Test Standard	IEC 61215, IEC 61646

Thermo Mechanical Chamber

Model	Thermo Mechanical
Workspace Dimensions (mm)	2000 X 800 X 500
WxDxH (In)	79 X 31 X 20
Volume (Ltr) / Cuft	800 / 28
Temperature Range °C / °F	-60 To +60 / -76 To +140
Ramp Rates - Cooling(°C/min)	1
Hydraulic Load - Ton	Adjustable from 0 to 20
Test Standard	IEC61109



Tumbling Chamber for Ballistic Evaluation of Bullet Proof Jackets

Model	Tumbling Chamber
Workspace Dimensions (mm)	1000 X 1000 X 1000
WxDxH (In)	39 X 39 X 39
Volume (Ltr) / Cuft	1000 / 35
Temperature Range °C / °F	-20 To+ 100 / -4 To +212
Ramp Rates - Cooling (°C/min)	5
Ramp Rates - Heating (°C/min)	5
Test Standard	NIJ 0101.06

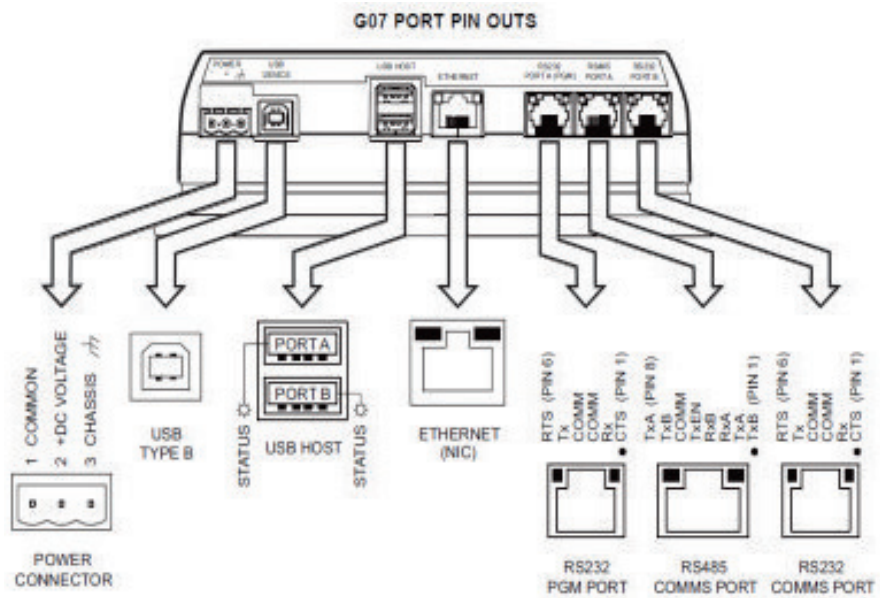
ENVICOM SMART CONTROL

Screen Sizes & Resolutions

Resolutions available from 800 x480 to 1280 x 800

Security - User Level Rights

Protect your test data from being misused.
USER - Access to create and run test program.
ADMIN - Access to settings & other configurations.
FACTORY - Restricted to only authorised service personnel.



Versatile Communication

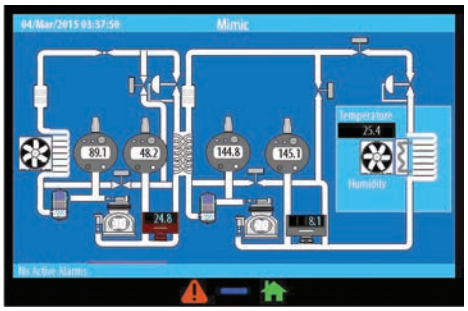
Connect USB drive to download information.
On-board 2GB SDcard to store multiple test programs.
Ethernet port for internet access to your chamber.
RS232, RS485, for integration with third party software such as NI/Labview®.

Chamber Analytics with Pro-active Support

Diagnostic information will be synchronized to a FTP server. The user can access chamber analytic information such as:

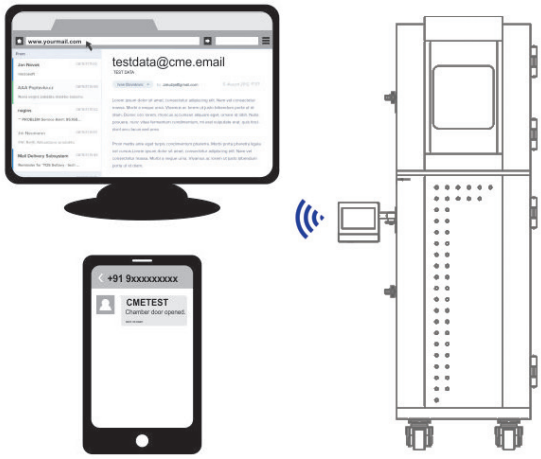
Power consumption
Chamber usage
Refrigeration system health
Alarm history

This information is available on www.cmenvirosystems.com with a unique user ID & password.



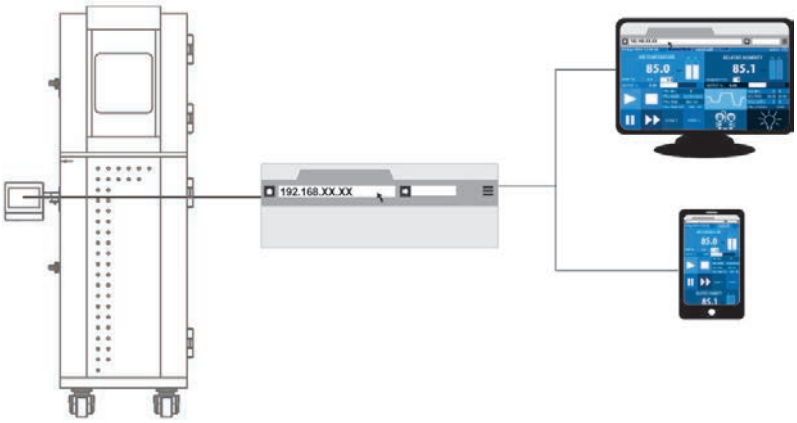
Diagnostic

All critical parameters of the chamber such as suction pressure, discharge pressure, return gas temperature are monitored & displayed in the process Mimic.



Email & SMS

Automatic email of test program. SMS of diagnostic information such as power failure, Specimen over temperature etc.



Web Enabled Controller

No software required to remote control & monitor the chamber. Just use your favorite web browser such as Google Chrome, Firefox & IE.

Envicom Smart Control

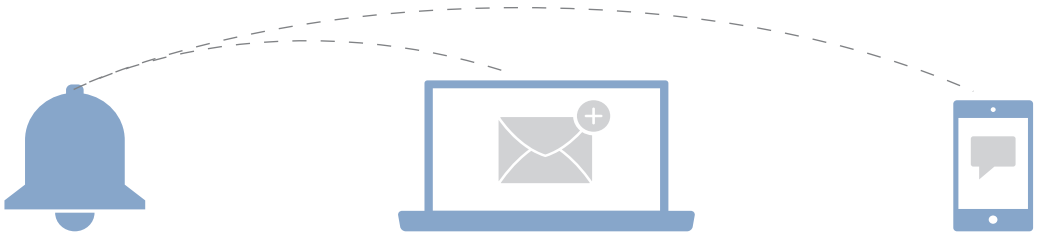
Connected through FTP server.

1 Chamber Analytic

Analyse data from controller such as
Power Consumption, Chamber Usage, Refrigeration System, Compressor Health

2 Trigger Alarm

If there is any risk of potential failure from the analysed data then CME is notified.



3 Initiate Proactive Support

As we get notified of the potential failure, the support process is initiated.
Self Dioagnostics, Online Support & On-site Support.

Self Dioagnostics

Online Support

On-site Support.

OPTIONAL ACCESSORIES

STAINLESS STEEL SHELF
Additional adjustable stainless steel mesh type shelf for distribution of test samples within the basket

ENVICOM CONTROLLER SCREEN
9” WVGA 800 x 480 LCD color touch screen

ENVICOM CONTROLLER SCREEN
12” WXGA 1280 x 800 LCD color touch screen

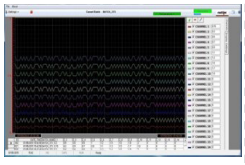
ENVICOM CONTROLLER SCREEN
15” XGA 1024 x 768 LCD color touch screen

DESICCANT AIR DRYER
The compact dehumidifier removes moisture through a process of continuous “physical adsorption”.

GN2 PURGE
For operation with an on-site compressed air dryer or for the insert of an inert gas.

6 CHANNEL DATA LOGGER
RTD 6 module will be provided, to simultaneously monitor 6 temperature points. These RTD Pt-100 will be placed inside the test chamber. Note: A maximum for 4 such RTD 6 modules can be attached to one single chamber.

GPIB CONVERTOR
The existing Ethernet port will be port used to convert to GPIB. The convertor will be placed inside the control panel and the interface cable slot will be provided.



GRAPHICAL DATA-LOGGING SOFTWARE
This software is used to monitor and plot the stored csv data of multiple channels in graphical format. Live trend can also be plotted.

GPIB CABLE
Interface cable to the GPIB convertor

INDIA

CM Envirosystems Private Limited
Plot no 18 & 19, 1st Main, 1st Cross
KIADB Industrial Area, Dabaspet, Nelamangala Taluk
Bangalore 562 111, Karnataka, INDIA

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