Why desiccant technology based Dehumidifying Dry Storage Cabinets are virtually maintenance-free?
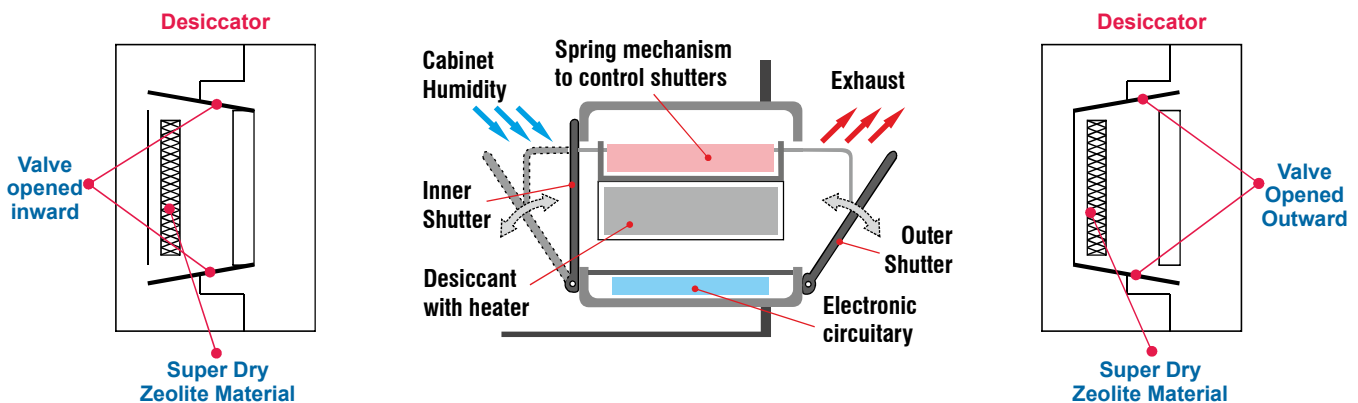
Zeolite used in Desiccators does not need replacement or substitution, that is why this technology is virtually maintenance-free

Desiccant technology uses highly porous crystalline material belonging to alumino silicates class, called Zeolite. Zeolite desiccant is refreshed by controlled heating and allows the trapped moisture in it to escape thru the vents located at the back side of the Cabinet. Once Zeolite desiccant material is refreshed thru heating, it seals o the back side vents and opens to the interior side for dehumidi cation to set level as programmed. The dehumidi cation level inside is continuously compared to the preset level till it achieves the desired RH level.

Zeolite material

Re-heating of the Zeolite desiccant material starts only when the humidity inside the cabinet exceeds the absorption capacity of Zeolite drying material. Normally the re-generation of the Zeolite desiccant material thru just 8 minutes heating, su ces for many weeks of dehumudi cation process.

Desiccator

Valve opened inward

Super Dry Zeolite Material

Cabinet Humidity

Spring mechanism to control shutters

Exhaust

Inner Shutter

Desiccant with heater

Outer Shutter

Electronic circuitary

Desiccator

Valve Opened Outward
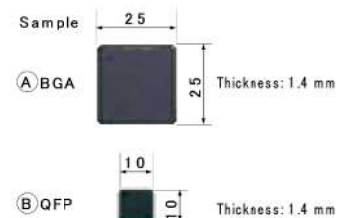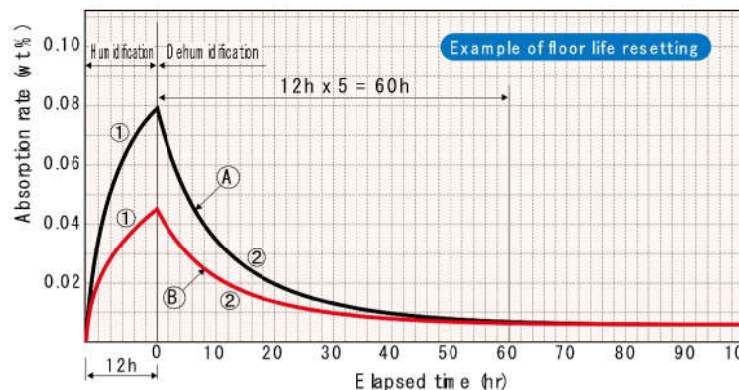
Super Dry Zeolite Material

Absorption Stage: Valves are opened inward and closed outward in order to absorb moisture in the desiccators from the Cabinet and stored items/ components placed inside and maintains the set humidity with repeated process

Exhaustion Stage: Valves are closed inward and opened outward in order to exhaust moisture from saturated desiccators to atmosphere outside the dehumidifying dry cabinet

Our Dehumidifying Storage Cabinets are conformant to and meet new IPC/JEDEC J-STD-033C

Room temperature dehumidification of IC packages under the new IPC/JEDEC control standards (resetting)

According to new IPC/JEDEC J-STD-033C Standard, level 2 to level 4 IC packages removed from moisture barrier bags are to be kept in storage cabinets at a humidity of 10% RH or less. The standard also specifies that the floor life of an IC package removed from its moisture barrier bag and left exposed at 30°C with a humidity of 60% RH or less will be reset if the package is stored in a cabinet with a humidity of 10% RH or less for 5 times as long as it was left exposed. (Note that the exposure period must not exceed 12 hours.)

Example of floor life resetting

12h x 5 = 60h

Absorption rate (wt%)

Elapsed time (hr)

Humidification / Dehumidification

12h

Sample 25

(A) BGA — Thickness: 1.4 mm

(B) QFP — Thickness: 1.4 mm

Pretreatment: Baked at 125°C for 24 hours
Measurement conditions
(1) Humidification: Exposed for 12 hours at 30°C and 60% RH (using a constant temperature and humidity room)
(2) Dehumidification: Stored in a low-humidity cabinet at 3% RH

Warranty is 12 months from the date of invoice. It excludes any mechanically damaged part.

2

Website: www.indeonline.in • Landline: 0172-4614415 • Cell Phones: 8283820745 & 9316134502 • Email: info@indeonline.in

1 ~ 60% RH Dehumidifying Dry Storage Cabinet Model SFR1428-6D-160

INDE
reliable & caring since 1976

6 Desiccators, 5 with interlocked fans for super fast recovery • Power backup facility

Humidity range conforms to IPC/JEDEC J-STD 033C Standards for storing even expensive IC packages

Features:

☐ **5 in-built interlocked fans**
☐ **in-built Door Alarm**
☐ **USB Interface for data logging**
☐ **New Digital Display**

Six Desiccators ensure faster set humidity recovery

Digital Display with USB PC Interface & Door Alarm

Five Auxiliary desiccators have five interlocked fans which are controlled with switches on the doors to ensure super fast humidity recovery once the door is opened for some time

Rugged Handles lock by pressing & with Key

Wrist Strap Terminal for ESD Safety

ESD Safe

4 Heavy Duty Castor Wheels (2 Wheels lockable)

Features:

• Capacity: 1428 litres (approx.)
• Tampered Toughened Glass Windows
• LED Display for Temperature and Humidity
• Humidity Controller maintains stable RH Level
• Accuracy: ±3%RH (It is not ±3%)*

* If the set humidity is 10%RH. Then the actual value will be within 7%RH & 13%RH. If it is set at 18%RH then actual value will be within 15%RH & 21%RH.

Specifications:

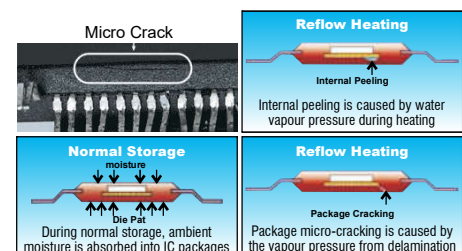|	
Humidity Range	: 1% ~ 60%RH
Humidity Technique	: Semi-permanet dry desiccant
Internal Dimensions	: 1198W x 680D x 1738H mm approx.
External Dimensions	: 1200W x 710D x 1920H mm approx.
Material	: Cold Roll Steel with Black Paint
No. of Doors/Shelves	: 6 Doors/6 Shelves
Input Supply	: 220V ~ 240V, 50Hz

Wide applications of ESD Safe Dehumidifying Dry Storage Cabinets

Moisture Sensitive IC Packages, PCBs, Silicon Wafers, Ceramic Substrates, Crystal Resonators, Optical Fiber & RF Connectors, Medical Samples, Pharmaceuticals, Surgical Instruments, Video Tapes, Micro Films, Camera Lenses and Cameras, Tea Samples, Coffee Samples, Night Vision Equipments, Seed Samples etc.

ESD Safe Dehumidifying Storage Cabinets are must to maintain high reliability of Bare/Assembled PCBs, ICs & other expensive components

Miniaturization in electronics field require use of expensive large size ICs which are not only static charge sensitive but are also moisture sensitive. Such ICs need higher level of moisture control as otherwise they will have internal cracking during reflow process because of moisture expansion. Prevention lies in storing such ICs in ESD Safe and Humidity controlled Dry Storage Cabinets.

Our Low Humidity Dehumidifying Storage Cabinets guarantees reliable, safe and dry storage of moisture-sensitive IC Components in accordance with international IPC/JDEC Standards. Moisture stored in the plastics of the IC units is extracted with help of strong Zeolite drying agent in desiccator.

Micro Crack

Reflow Heating
Internal Peeling
Internal peeling is caused by water vapour pressure during heating

Normal Storage (moisture)
Die Pat
During normal storage, ambient moisture is absorbed into IC packages

Reflow Heating
Package Cracking
Package micro-cracking is caused by the vapour pressure from delamination

1

1 ~ 60% RH Dehumidifying Dry Storage Cabinet Model IDSC-728

INDE
reliable & caring since 1976

ESD Safe • 3 Desiccators for fast recovery • normally immediate delivery

Humidity range conforms to IPC/JEDEC J-STD 033C Standards for storing even expensive IC packages

Rugged Handles lock by pressing & with Key

Wrist Strap Terminals for ESD Safe working

Grounding Line is provided at back side

Three Desiccators ensure faster set humidity recovery

Digital Thermo Hygrometer with PC Interface

Special strong and heavy duty type Door Hinges for long term usage reliablility

4 Heavy Duty Castor Wheels (2 Wheels lockable)

Specifications:

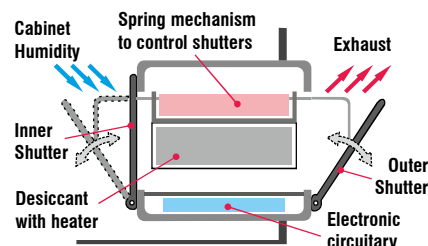|	
Humidity Range	: 1% ~ 60%RH
Humidity Technique	: Semi-permanet dry desiccant
Internal Dimensions	: 598W x 680D x 1738H mm approx.
External Dimensions	: 600W x 710D x 1920H mm approx.
Material	: Cold Roll Steel with Black Paint
No. of Doors/Shelves	: 3 Doors/5 Shelves
Input Supply	: 220V ~ 240V, 50Hz, 13 Watt

Features:

- Capacity: 728 litres (approx.)
- Tampered Toughened Glass Windows
- LED Display for Temperature and Humidity
- Humidity Controller maintains stable RH Level
- Accuracy: ±3%RH (It is not ±3%)*

* If the set humdity is 10%RH. Then the actual value will be within 7%RH & 13%RH. If it is set at 18%RH then actual value will be within 15%RH & 21%RH.
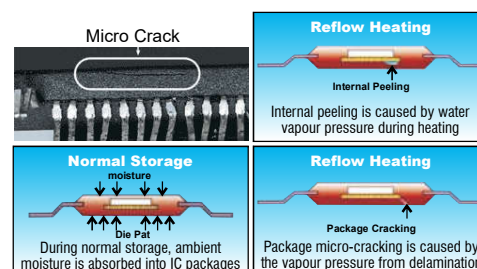
Dehumidifying Principle

Humidity is removed inside the Storage Cabinets by use of dry powerful zeolite desiccant. The desiccant is automatically recycled with an in-built heating mechanism. It does not require replacement. Moisture absorbed by the zeolite desiccant, is released outside of the cabinet. No maintenance is required.

Cabinet Humidity
Spring mechanism to control shutters
Exhaust
Inner Shutter
Outer Shutter
Desiccant with heater
Electronic circuitary

ESD Safe Dehumidifying Storage Cabinets are must to maintain high reliability of Bare/Assembled PCBs, ICs & other expensive components

Miniaturization in electronics field require use of expensive large size ICs which are not only static charge sensitive but are also moisture sensitive. Such ICs need higher level of moisture control as otherwise they will have internal cracking during reflow process because of moisture expansion. Prevention lies in storing such ICs in ESD Safe and Humidity controlled Dry Storage Cabinets.

Micro Crack

Reflow Heating
Internal Peeling
Internal peeling is caused by water vapour pressure during heating

Normal Storage
moisture
Die Pat
During normal storage, ambient moisture is absorbed into IC packages

Reflow Heating
Package Cracking
Package micro-cracking is caused by the vapour pressure from delamination

1

Optional Door Alarm Module

This Module can be installed on top of the Humidity Cabinet to monitor the humidity inside the cabinet and to alert the user for any change in humidity value.

This Module is programmable for upper and lower limit of humidity. Once the humidity inside the cabinet increases or decreases from this programmed limit, the alarm will start with beep sound.

Example: The set value in the cabinet is 30% RH. The Alarm Module is programmed for +/- 5%RH. Then if the value of humidity inside the cabinet increases beyond 35%RH then the alarm start ringing. Accordingly if the humidity inside the cabinet decreases beyond 25%RH then the alarm start ringing.

If the door is opened for long time, the humidity value increases from the set upper limit - the alarm start ringing

## Optional Data Logger with PC Interface & Software

The humidity and temperature inside the cabinet is monitored on a computer using this optionally available Data-logger.

For this Datalogging the hardware is fitted on the Dry Cabinet. This hardware allows the Dry Cabinet to be connected to a PC thru a connecting cable (RS232 to USB).

The software provided allows the capturing and saving the data on a computer.

Capturing time intervals is programmable. It can be programmed for 1 second, 1, 2, 3, 4, & 5 minutes.

The data is displayed on the monitor in tabular form as well as in graphical form. This data is captured and automatically saved in the computer. This data can be viewed in excel sheets for further analysis.
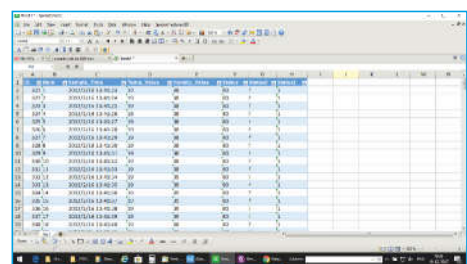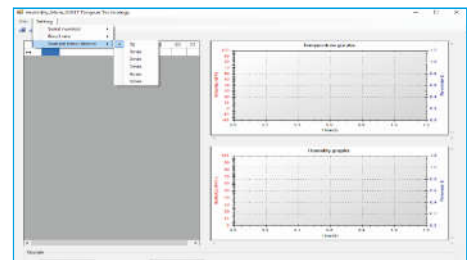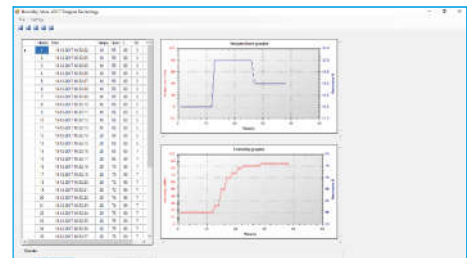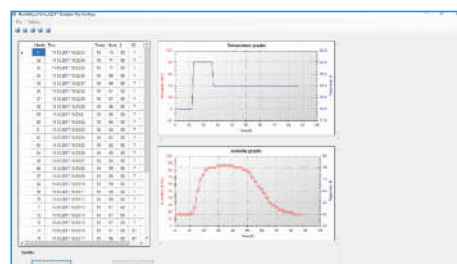
ESD Safe • 2 Desiccators for fast recovery • normally immediate delivery

Conforms to IPC/JEDEC J-STD 033C Standards for storing even expensive IC packages

This is a Dehumidifying Cabinet to control humidity level from ambient humidity (which is maximum) level to down level as programmed. It controls % RH level to ambient humidity. As there is no temperature controlling, the digital display shows ambient temperature only.

Precise %RH Programmer with RS232
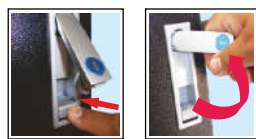
Rugged Handles lock by pressing and also lock with removable Key

Two reliable and powerful Desiccators ensure faster set humidity recovery

Wrist Strap Terminal for ESD Safety

The Grounding Braid on the back side is provided for electrical earthing for safety

4 Heavy Duty Castor Wheels (2 Wheels lockable)

Specifications:

Humidity Range	: 5% ~ 50%RH
Humidity Technique	: Semi-permanet dry Desiccant
Internal Dimensions	: 898Wx450Dx1100H mm approx.
External Dimensions	: 900Wx480Dx1250H mm approx.
Material	: Cold Roll Steel with Black Paint
No. of Doors/Shelves	: 2 Doors/3 Shelves
Input Supply	: 220V ~ 240V, 50Hz, 13 Watt

Features:

- Capacity: 440 litres (approx.)
- Tampered Toughened Glass Windows
- LED Display for Temperature and Humidity
- Humidity Controller maintains stable RH Level
- Accuracy: ±3%RH (It is not ±3%)*

* If the set humdity is 10%RH. Then the actual value will be within 7%RH & 13%RH. If it is set at 18%RH then actual value will be within 15%RH & 21%RH.
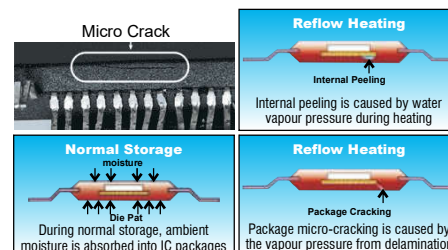
Wide applications of ESD Safe Dehumidifying Dry Storage Cabinets

Moisture Sensitive IC Packages, PCBs, Silicon Wafers, Ceramic Substrates, Crystal Resonators, Optical Fiber & RF Connectors, Medical Samples, Pharmaceuticals, Surgical Instruments, Video Tapes, Micro Films, Camera Lenses and Cameras, Tea Samples, Coffee Samples, Night Vision Equipments, Seed Samples etc.

ESD Safe Dehumidifying Storage Cabinets are must to maintain high reliability of Bare/Assembled PCBs, ICs & other expensive components

Miniaturization in electronics field require use of expensive large size ICs which are not only static charge sensitive but are also moisture sensitive. Such ICs need higher level of moisture control as otherwise they will have internal cracking during reflow process because of moisture expansion. Prevention lies in storing such ICs in ESD Safe and Humidity controlled Dry Storage Cabinets.

Micro Crack

Reflow Heating — Internal Peeling — Internal peeling is caused by water vapour pressure during heating

Normal Storage — Die Pat — During normal storage, ambient moisture is absorbed into IC packages

Reflow Heating — Package Cracking — Package micro-cracking is caused by the vapour pressure from delamination

Our Low Humidity Dehumidifying Storage Cabinets guarantees reliable, safe and dry storage of moisture-sensitive IC Components in accordance with international IPC/JDEC Standards. Moisture stored in the plastics of the IC units is extracted with help of strong Zeolite drying agent in desiccator.

1

10~60%RH Dehumidifying Dry Storage Cabinet Model IDSC-180

INDE
reliable & caring since 1976

low priced model for consumer applications • normally immediate delivery

Commonly used for:

- **Mass Media Storage:**
  - Cameras, Photographic, Audio Visual products, Optical Lenses etc.

- **Food & Drug Storage:**
  - Dehydrated food, powder food, health food, tea samples etc.

- **Art & Collection Storage:**
  - Art, music, stamp and other paper materials etc.

Precise Humidity Control, Digital display of %RH value and ambient temperature

Features:

- Capacity: 189 litres (approx.)
- Tampered Toughened Glass Windows
- LED Display for Temperature and Humidity
- Door frame covered with Magnetic Rubber to avoid leakage
- Humidity Controller maintains stable RH Level
- Accuracy: ±3%RH (It is not ±3%)*

* If the set humidity is 10%RH. Then the actual value will be within 7%RH & 13%RH. If it is set at 18%RH then actual value will be within 15%RH & 21%RH.

Powerful Desiccators ensure **faster** recovery to set %RH value

Shelf Clamp
Shelf Slot Column has slots at regular distances for height adjustment of Shelves as per usage requirement

Specifications:
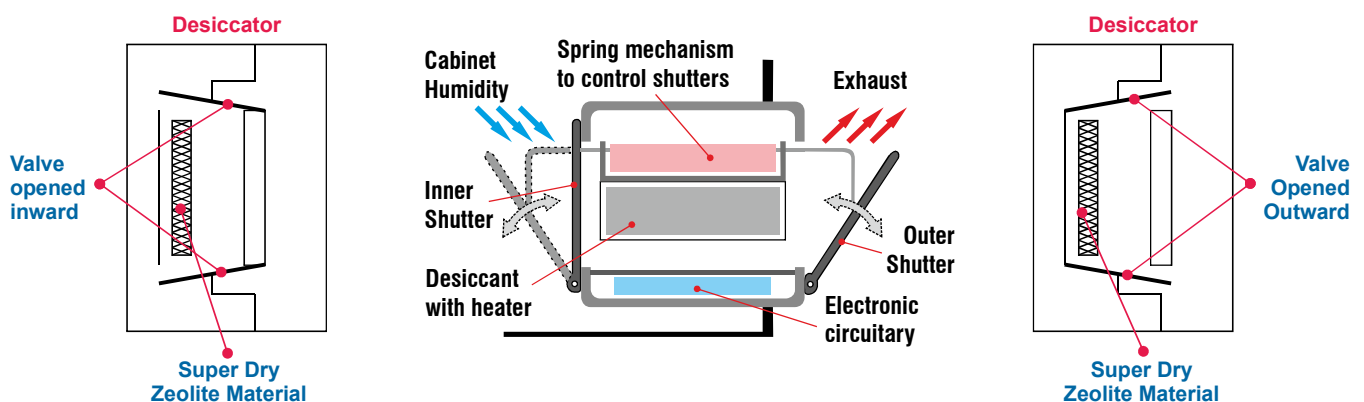
Humidity Range	: 10% ~ 60%RH
Humidity Technique	: Semi-permanet dry Desiccant
Internal Dimensions	: 398W x 375D x 1240H mm approx.
External Dimensions	: 400W x 400D x 1315H mm approx.
Material	: Cold Roll Steel with Black Paint
No. of Doors/Shelves	: 2 Doors/5 Shelves
Input Supply	: 220V ~ 240V, 50Hz

Grounding Line is provided at back side of the Cabinet to maintain the ESD safety of the Cabinet

Desiccator
Valve opened inward
Super Dry Zeolite Material

Cabinet Humidity
Spring mechanism to control shutters
Exhaust
Inner Shutter
Desiccant with heater
Outer Shutter
Electronic circuitary

Desiccator
Valve Opened Outward
Super Dry Zeolite Material

Absorption Stage: Valves are opened inward & closed outward in order to absorb moisture in the desiccators from the Cabinet and stored items/components placed inside & maintains the set humidity with repeated process

Exhaustion Stage: Valves are closed inward and opened outward in order to exhaust moisture from saturated desiccators to atmosphere outside the dehumidifying dry cabinet

1

Dehumidifying Dry Storage Cabinet Low Cost Model FCM280

INDE
reliable & caring since 1976

low priced model for consumer applications · normally immediate delivery

Precise Digitized Humidity Control with display of %RH value & room temperature

Shelf Clamp

Shelf Slot Column has slots at regular distances for height adjustment of Shelves as per usage requirement
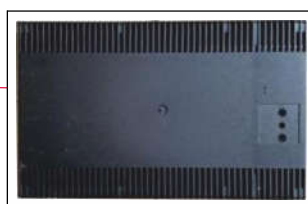
Powerful Desiccator ensures faster recovery to set %RH value

Commonly used for:

• **Mass Media Storage:**
- Cameras, Photographic, Audio Visual products, Optical Lenses etc.

• **Food & Drug Storage:**
- Dehydrated Food, Powder Food, Health Food, Tea Samples etc.

Features:

- Capacity: 84 litres (approx.)
- Tampered Toughened Glass Windows
- LED Display for Temperature and Humidity
- Door Frame covered with Magnetic Rubber to avoid leakage
- Precise Humidity Controller maintains stable RH Level
- Accuracy: ±3%RH (It is not ±3%)*
  * If the set humdity is 10%RH. Then the actual value will be within 7%RH & 13%RH. If it is set at 18%RH then actual value will be within 15%RH & 21%RH.
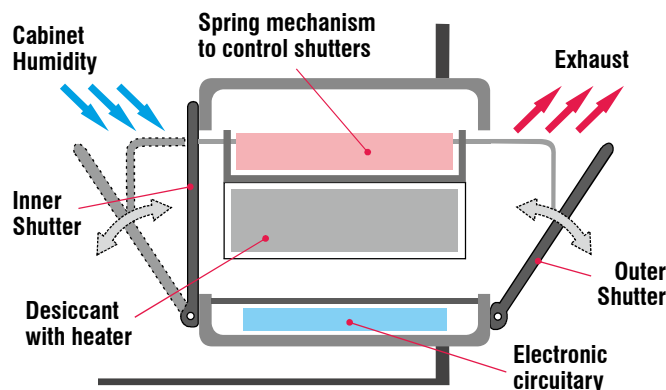
Specifications:

Humidity Range   : 20% ~ 60%RH
Humidity Technique   : Semi-permanet dry Desiccant
Internal Dimensions : 398W x 370D x 545H mm approx.
External Dimensions : 400W x 400D x 620H mm approx.
Material   : Cold Roll Steel with Black Paint
No. of Doors/Shelves : 1 Doors/2 Shelves
Input Supply   : 220V ~ 240V, 50Hz, 7 Watt

Dehumidifying Principle

Humidity is removed inside the Storage Cabinets by use of dry powerful zeolite desiccant.

The desiccant is automatically recycled with an in-built heating mechanism. It does not require replacement. Moisture absorbed by the zeolite desiccant, is released outside of the cabinet. No maintenance is required.

Cabinet Humidity

Spring mechanism to control shutters

Exhaust

Inner Shutter

Desiccant with heater

Outer Shutter

Electronic circuitary