



OPERATION MANUAL

ESDA Acrylic Drying Cabinets

Thank you for deciding for a drying cabinet from Totech's acrylic line.





Content

1. Safety Instructions
2. Application Range
3. Special Features of the Drying Cabinet
4. Dehumidification Process
5. Installation
6. Drying Cabinet Components
7. Cabinet Settings
8. Hygrometer Settings
9. Troubleshooting
10. Technical Data
11. Optionally Available Equipment
12. CE Declaration

1. Safety Instructions

In order to prevent possible risk and damage to the drying cabinet resulting from inappropriate use, please thoroughly read and adhere to the safety instructions below.



Unplug

In case you recognize a smell of burning or detect smoke, disconnect the drying cabinet from the grid. Do not attempt to repair the unit by yourself. As a result thereof, your warranty may lapse.



Unplug

In the event of liquids escaping inside the cabinet, please ensure to disconnect the drying cabinet from the grid in order to prevent electric shock.



Disassemble

Please ensure to generally disconnect the drying cabinet from the grid when configuration or repair activities are being performed.



Prohibition

Please ensure not to store any inflammable or explosive materials inside the cabinet.



Prohibition

Do not operate the drying cabinet in wet or humid environments.



Prohibition

Please ensure not to run over or otherwise damage the cabinet's power cable.

In order to prevent damage and/or fire, please ensure to exclusively operate the unit in vertical position.



Prohibition

Please ensure not to plug in or out the cabinet's power cable when your hands are wet – risk of electric shock.



Prohibition

In order to prevent the unit from overturning, please ensure not to place any heavy-weight items on top of the drying cabinet.



Prohibition

Please ensure not to store hydrochloric acid, sulfuric acid, or any other caustic agents inside the cabinet, as this may cause corrosion.



Caution

Please note that the doors' glass inserts are not break-proof.





2. Application Range

Independent of the ambient relative humidity, the drying cabinet will stabilize the internal humidity at 5 – 50%RH. It is thus ideally suitable for storing and protecting e.g. the following from oxidation:

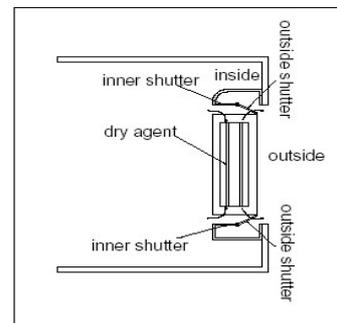
- 1) Storage of all kinds of integrated circuits (IC), e.g. monolithic, LSI, VLSI, ULSI, bipolar, MDS, CCD, MCM, DIP, SOP, SOIC, TSOP, VSOP, SDIP, SIP, SOJ, SVP, QFJ, CSP, KGD, PGA, QFP, TCP, LCA, as well as BGA etc.
- 2) Storage of silicon and wafers
- 3) Storage of aeronautical instruments and tools
- 4) Storage of optical equipment and special machinery
- 5) Storage of timepieces
- 6) Storage of PDP control equipment, Liquid Crystal cleaning devices, LCD and TAC etc.
- 7) Storage of LEDs and LDs
- 8) Ideally suitable also for storage and procedures to provide protection from corrosion, mildew, and deterioration (archival storage, DNA backup).

3. Special Features of the Drying Cabinet

- 1) Quick dehumidification. Subsequent to the drying agent's automatic heat-generated regeneration, the unit's integrated ventilator will start filtering for approx. 2 hours. As a result thereof, the absorption of humidity is accelerated to the maximum.
- 2) The mechanical humidity controller allows for defining the requested air humidity. This ensures ideal adjustment to individual applications.
- 3) ESD has been safely equipped with conductive acrylic glass and stainless steel shelves. This makes our drying cabinet perfectly suitable for being used in ESD protected areas.
- 4) Due to its dust-free design, urethane castors, and stainless steel shelves, the drying cabinet is particularly suitable for being used in cleanrooms.

4. Dehumidification Process

Our drying cabinet uses a dry agent in order to control the humidity level. The respective dry agent is regenerated each 6 hours for approx. 1 hour (recycling). The dry agent can be fully recycled as often as required. Consequentially, specified maintenance intervals do not exist. During the automatic regeneration process, outward ventilation holes serve to release absorbed humidity back to the environment. Upon completed regeneration, the ventilation flaps are reversed. Using the regenerated dry agent, humidity absorption inside the drying cabinet will now start. The dehumidification process will be continued until the preset humidity level has been achieved. As soon as the air humidity exceeds the respective parameter again, dehumidification will restart. In order to accelerate humidity absorption, the ventilator operates for approx. 2 hours after regeneration.

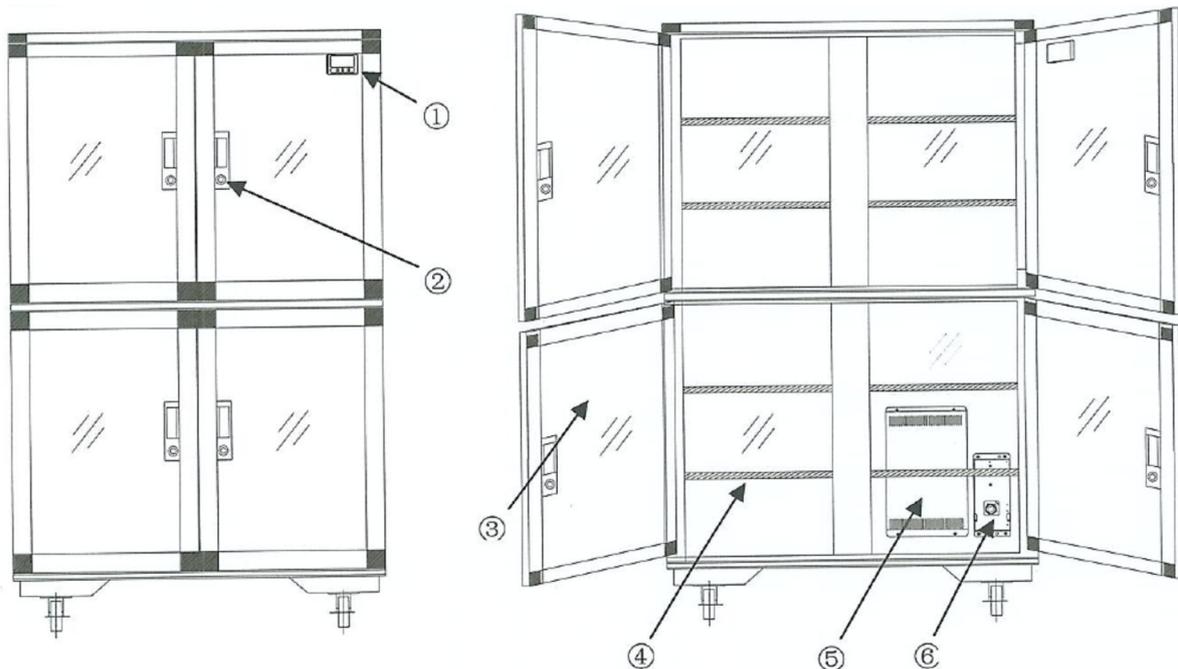




5. Installation

- Ensure not to operate the drying cabinet nearby air conditioning units and/or at sites exposed to high temperatures, smoke, dust, or direct sunlight.
- In the event the drying unit has to be set up on uneven surfaces, place the included metal plates underneath the device, if necessary. This will facilitate the glass doors' perfect leveling.
- Please ensure to keep a minimum distance of 5 cm at the unit's back side.

6. Drying Cabinet Components

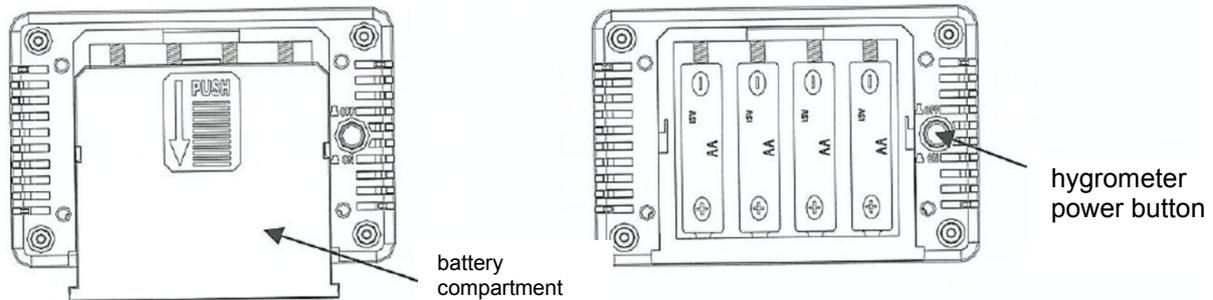


1. hygrometer
2. lock
3. door
4. shelf
5. dehumidifier U-4001
6. control unit (not available with design models including dryer U-4001)





Hygrometer Battery Replacement



1. Press the power button in order to switch off the hygrometer.
2. Remove the battery cover on the back side.
3. Replace the batteries. Then close the battery cover.
4. Pressing the power button again will restart the hygrometer.

7. Cabinet Settings

1. Before storing any products in it, please allow the cabinet to operate empty for 4 hours. The hygrometer's humidity indication serves to check its functionality.
2. The humidity inside the cabinet will automatically decrease to its lowest point.
3. Once the defined humidity level has been achieved, the dehumidifier will automatically stop the dehumidification process, and constantly maintain the respective level.
4. During the regeneration cycle, the dehumidifier's surface temperature will rise. The heating and cool-down phases will take approx. 30 minutes each.
5. Defined humidity levels cannot exceed the ambient humidity. The cabinet cannot perform humidification.





8. Hygrometer Settings

Please note: the hygrometer exclusively serves to indicate the actually measured cabinet atmosphere values. Additionally, the unit has been equipped with an alarm function, which is not activated (not included with our scope of delivery). In order to activate this function, please proceed as follows:

1. In the event the humidity level exceeds the alarm threshold, the alarm indication will be activated. For a period of 10 hours, the respective humidity values will be recorded in hourly intervals.
2. In case the humidity level drops below the alarm threshold, the device will deactivate the recording, and store respective data until the next alarm is triggered. Recording will then be restarted, and previously recorded alarm data will be deleted (0).
3. In order to set the humidity alarm threshold, press the buttons ">" or "<". The display will indicate the currently defined alarm threshold, and "%RH" will blink. You can now select a value ranging from 0 to 95%. Press the "SET" button in order to apply the selected value and return to the standard display.
4. In order to check recorded data, press the "SET" button. The display will indicate "AO", and after 2 seconds the first alarm will automatically be shown. Pressing the button ">" serves to display the second alarm value with A1, and so on. In order to quit the menu, press "SET".

9. Troubleshooting

Before making contact to our customer service, please check the following list.

1) Display provides no information

- Hygrometer is possibly switched off. Press "ON / OFF" button on the back side.
- Batteries are possibly drained. Please replace batteries (see item 6).

2) Humidity does not achieve the nominal value.

- Please check if the unit has been properly connected to the grid.
- Please check if the drying cabinet's doors have been properly closed.
- Have the drying cabinet's doors been repeatedly opened within the past 6 hours?

Please note: stored materials and ambient atmosphere will have significant influence on the air humidity inside the drying cabinet. If stored materials are very moist, the air humidity will decrease slowly. The air humidity inside the cabinet cannot exceed the ambient humidity.

If you have any questions, please do not hesitate to contact our sales representatives or our service center directly.

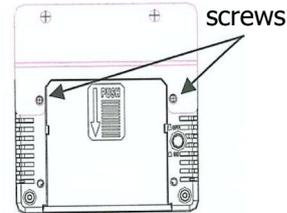
(service@tottech.eu.com)





Hygrometer Replacement

- 1) Open the hygrometer door.
- 2) Detach hygrometer by removing the 2 screws.
- 3) For assembly, proceed in reverse order.



10. Technical Data

Type	ESDA-201-40	ESDA-402-40	ESDA-804-40
humidity control	automatical humidity controller		
sensor	No sensor		
volume in l	200	400	820
inside dimensions WxHxD	560 x 730 x 480	560 x 1480 x 480	1120 x 1480 x 480
overall dimensions WxHxD	574 x 750 x 517	574 x 1690 x 517	1152 x 1690 x 517
material	casing and door made from conductive acrylic glass (PMMA) in aluminum profile frame		
weight	30kg	48kg	92kg
dehumidifier	U-4001 for <5% RH		
average energy consumption	31W		
maximum energy consumption	290W		
input supply voltage	230V~, 50Hz		
max. shelf bearing load	50kg		
number of shelves	2	5	10

Ambient conditions

- Temperature: 5°C to 40°C
- Height: max. 2000m
- Relative humidity: 80% relative humidity at temperatures of up to 31°C, linearly decreasing to 50% RH at 40°C





11. Optionally Available Equipment

-Extra shelves & Dividers are available for all models. It allows you to customize the dry / storage cabinet more effectively.

-Various optional N2 equipments provide more effective use of N2.

12. CE Declaration

This declaration given by Company

Totech Europe BV
Linge 28
8252 PJ Dronten

serves to confirm that the drying storage systems of ESDA product line comply with the basic safety and health requirements stipulated by the following EC Directives:

EN55011: 1998+A1:1999+A2:2002
EN61000-6-2:2001
2006/95/EC
2004/108/EC

Totech Europe B.V.
Gerhard Kurpiela

