

## MSD Cabinets



### Modular Dry Cabinet



#### Outstanding performance

A cabinet that grows with your demand, the MSD series is the first modular dry cabinet that can be expanded as your storage and drying needs increase.

Incorporating our extremely powerful U-5000 series dynamic drying unit, the basic MSD can be expanded to 4800 litres without the need for additional drying units.

Regeneration times are reduced due to the closed loop control of the drying unit which automatically responds to atmosphere and frequent door openings, while delivering precise humidity control to  $\leq 0,5\%$  RH with traceability to a computer or network.



## MSD Cabinets

### Standard features

✓ <b>User friendly handling</b>	Touchscreen display with easy menu structure
✓ <b>ESD features</b>	Norm (IEC 61340-5-1) ESD metal painted body (<10 <sup>6</sup> Ohm/sq) Dissipative glazing (in- and outside 10 <sup>8</sup> Ohm/sq)
✓ <b>Online functionality</b>	Interface and data logging through standard Ethernet interface Compatible with new MSL 2.0 software
✓ <b>Transport</b>	4 castors, ESD safe, for moving empty cabinets
✓ <b>Door &amp; humidity alarm buzzer</b>	Longer door openings are detected, high RH levels are detected
✓ <b>Leveling out</b>	Adjustable legs
✓ <b>Lockable doors</b>	Every door can be locked separately with a key.
✓ <b>Sliding shelves</b>	In height adjustable sliding shelves on metal rollers (4 pcs)
✓ <b>U-5000 series drying unit</b>	≤0,5% RH, made in Germany
✓ <b>Rotronic sensor</b>	Precision sensor, accuracy +/- 0,8 % RH, +/- 0,3°C
✓ <b>Power supply</b>	Power cord 5 meter with IEC plug

### Benefits

✓ <b>Drying time (see reference table)</b>	Fast drying time, Level 3 component, <1,4 mm = 8 days (25°C / 1% RH)
✓ <b>Recovery time after door opening</b>	< 6 minutes to below 1% (with 1 cabinet and 1 door opening)
✓ <b>Modular system</b>	Can be extended depending on your requirements
✓ <b>Temperature setting</b>	Heating up to 40°C, accuracy +/- 2°C
✓ <b>Low energy consumption</b>	As a result of a Dynamic dry unit
✓ <b>Network</b>	Standard ethernet interface
✓ <b>IPC</b>	According to IPC-Jstd 033C & IPC-1601
✓ <b>European Quality</b>	Made in Germany
✓ <b>Maintenance</b>	Easy to service, low maintenance

## MSD Cabinets

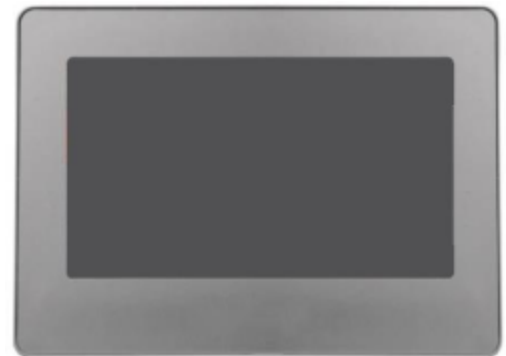
### Technical data cabinets

✓ External dimensions:	(W x H x D) 840 x 2040 x 900 mm
✓ Internal dimensions 1222:	(W x H x D) 830 x 1780 x 730 mm
✓ Internal dimensions 1223:	(W x H x D) 830 x 1780 x 850 mm
✓ Weight 1222:	140 kg
✓ Weight 1223:	125 kg
✓ Weight on shelf:	50 kg
✓ Shelves (WxD) 1222:	2 pcs short, 735 x 580 mm 2 pcs long, 735 x 740 mm
✓ Shelves (WxD) 1223:	4 pcs long, 735 x 740 mm
✓ Volume:	1200 L
✓ Electric supply:	230 VAC (120 VAC optional)
✓ Power consumption:	30 W/h
✓ Protection class:	Class 1, hard grounded
✓ Humidity level cabinet:	≤0,5% RH can be reached with drying unit U-5003
✓ Sensor accuracy:	+/- 0,8 % RH, +/- 0,3°C
✓ Temperature accuracy:	40° C, +/- 2° C (with optional heater)

### Technical data type 4 display

#### Settings

- ✓ Language Menu
- ✓ Nominal Value Humidity
- ✓ Humidity Alarm
- ✓ Delay Humidity Alarm
- ✓ Nominal Value Temperature (in combination with heater)
- ✓ Temperature Alarm (in combination with heater)
- ✓ Delay Temperature Alarm (in combination with heater)
- ✓ Sensor Offset
- ✓ Password Protection
- ✓ Floor Lifetime Reset Timer
- ✓ Manual Regeneration



#### Display

- ✓ Supply voltage (supplied by drying unit) 24 VAC/DC, 350 mA
- ✓ Input Touchscreen
- ✓ TFT Color LCD 4,3"
- ✓ Controllable Brightness
- ✓ Ethernet connection

## MSD Cabinets

### Technical data Rotronic sensor HC2A-S



Based on the Airchip 3000 Technology use the HygroClip 2 probes can be used for control of temperature and humidity.

The HygroClip 2 probes can be configured with the ROTRONIC HW4 software and share the following features:

- ✓ Measurement of relative humidity and temperature
- ✓ Programmable automatic sensor test with failsafe mode and sensor drift compensation.

### Technical data dry-unit U-5000 series

- ✓ Dehumidifying performance: 120 g/h max.
- ✓ Minimal humidity 0,2% RH
- ✓ Dehumidifying Temperature 10 – 60° C
- ✓ Electric supply: 230 VAC
- ✓ Dimensions (L x B x H): 487 x 487 x 150 mm
- ✓ Weight: 14 kg



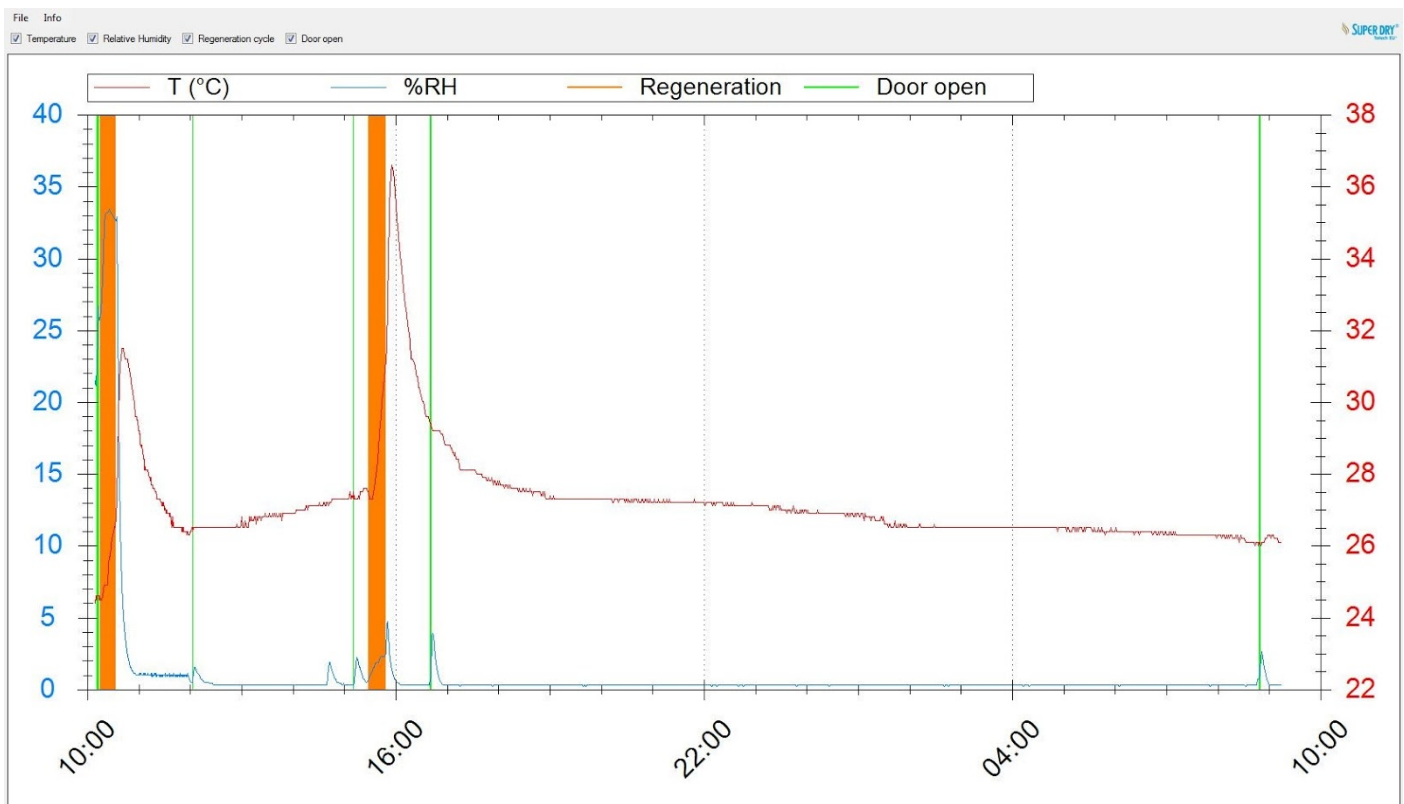
### Technical data heater SH-1200

- ✓ Power supply: 230 VAC (120 VAC also available)
- ✓ Power: 1650 W
- ✓ Thermal protection: 70°C
- ✓ Temperature range: 0 - 40 °C
- ✓ Air flow: 550 m<sup>3</sup>/h

## MSD Cabinets

### Free Totech viewer

- ✓ Writing of climate data, door openings and alarms to SD card
- ✓ Transfer data through Ethernet to PC (history data)
- ✓ User-friendly display of all relevant data
- ✓ Data processing in MS-Excel
  
- ✓ Seamless documentation
- ✓ Excellent process safety

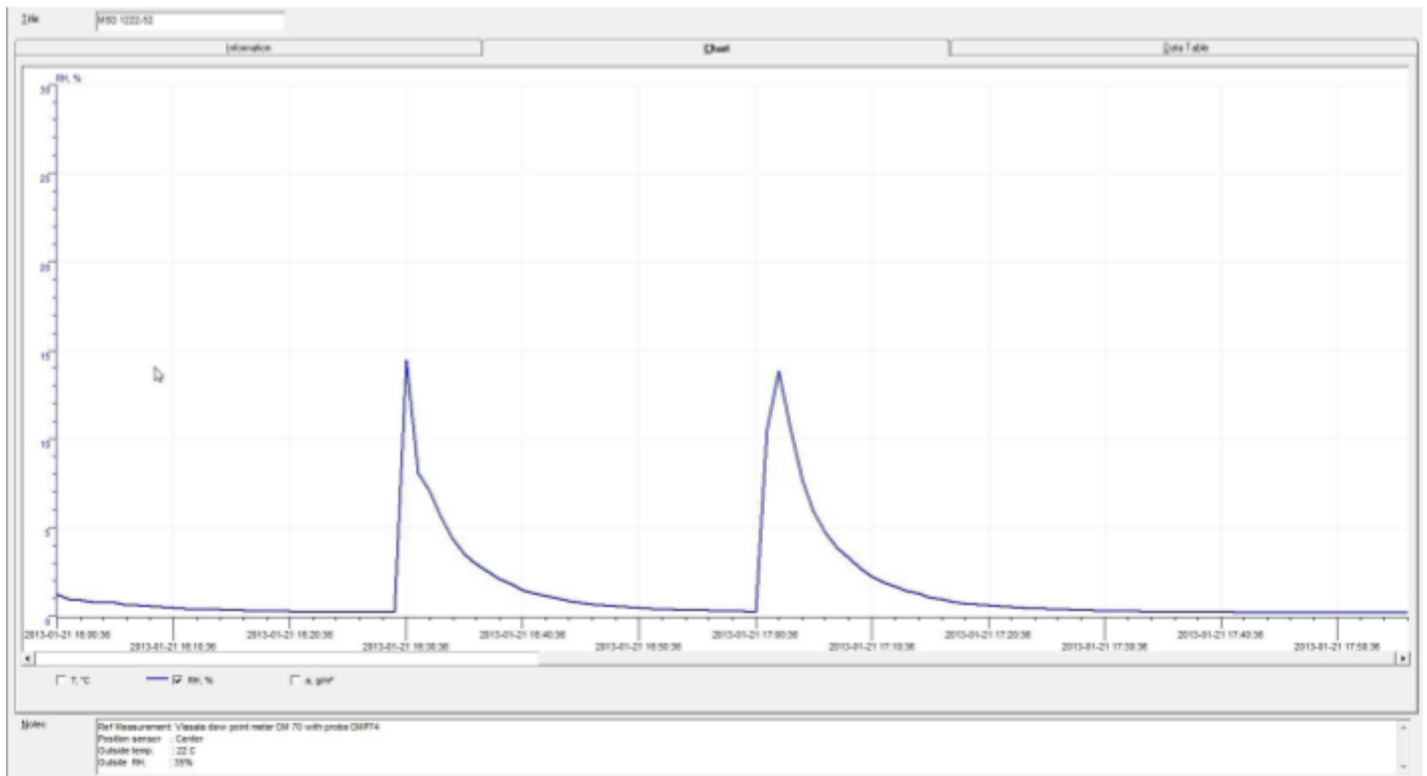


## MSD Cabinets

### Performance test



Configuration of cabinets: 1x MSD-1222

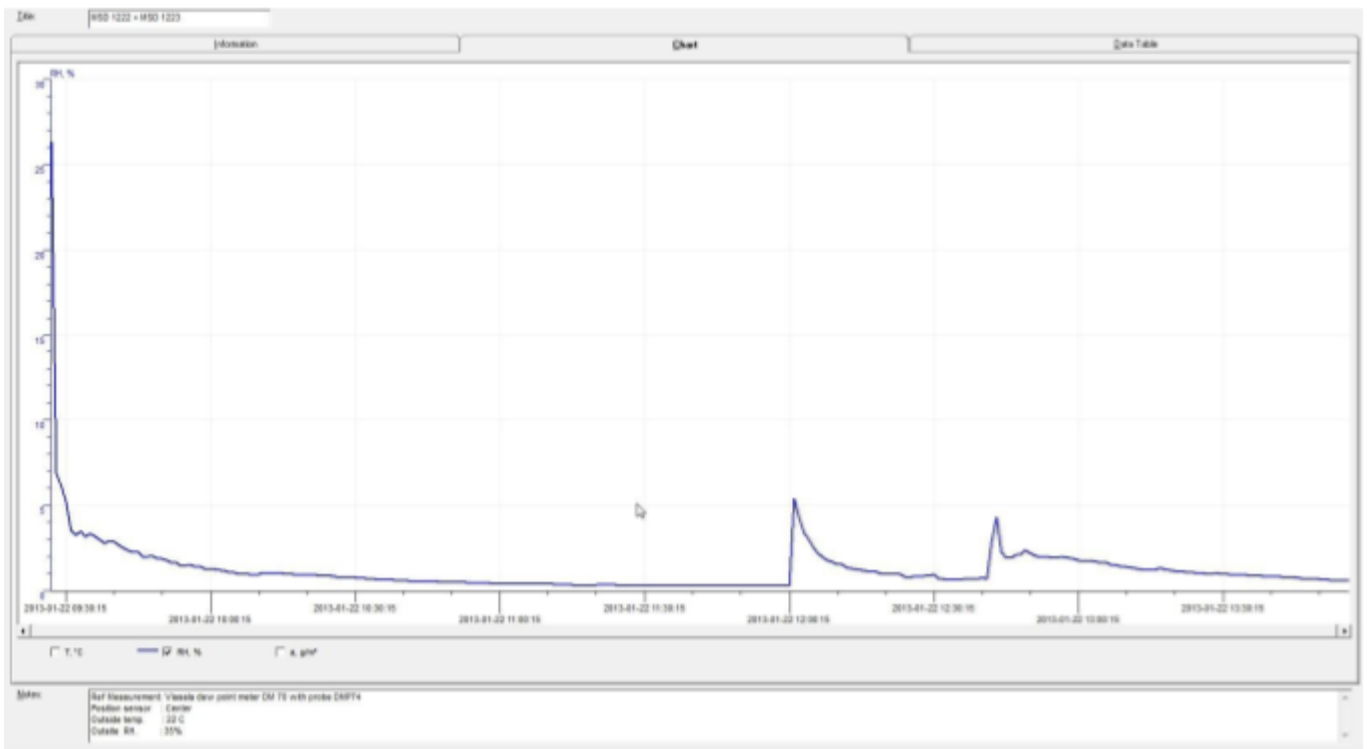


## MSD Cabinets

### Performance test



Configuration of cabinets: 1x MSD-1222  
1x MSD-1223

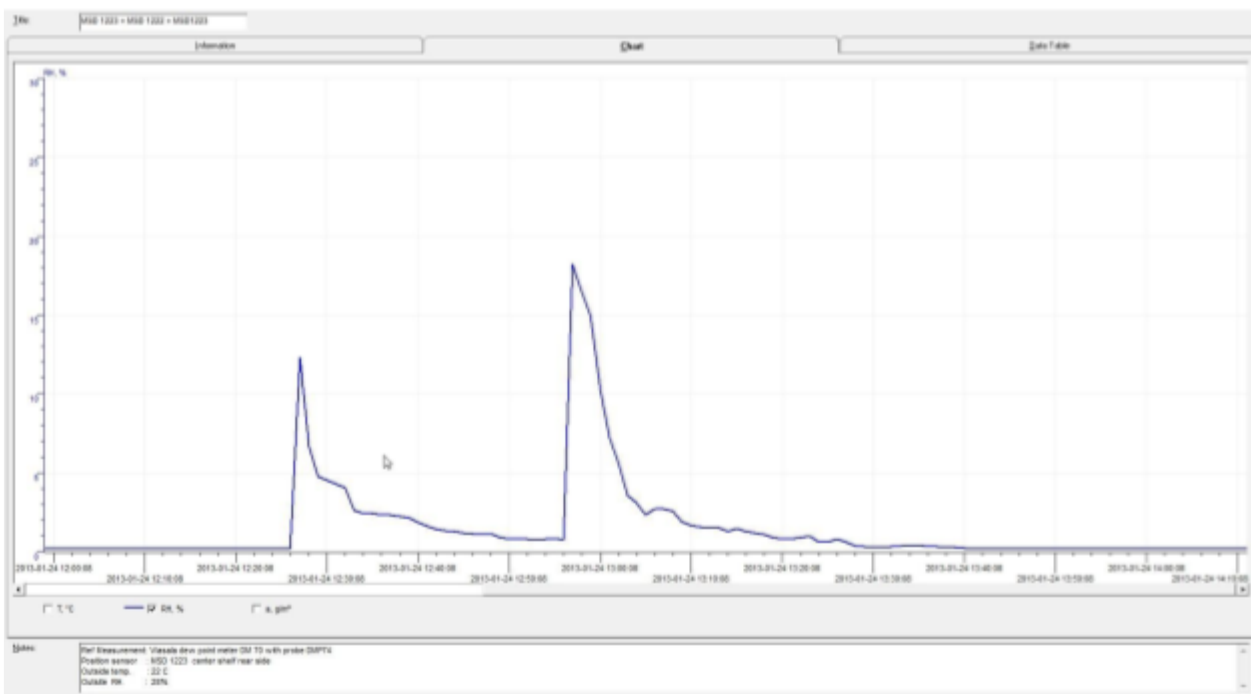


## MSD Cabinets

### Performance test



Configuration of cabinets: 1x MSD-1222  
2x MSD-1223



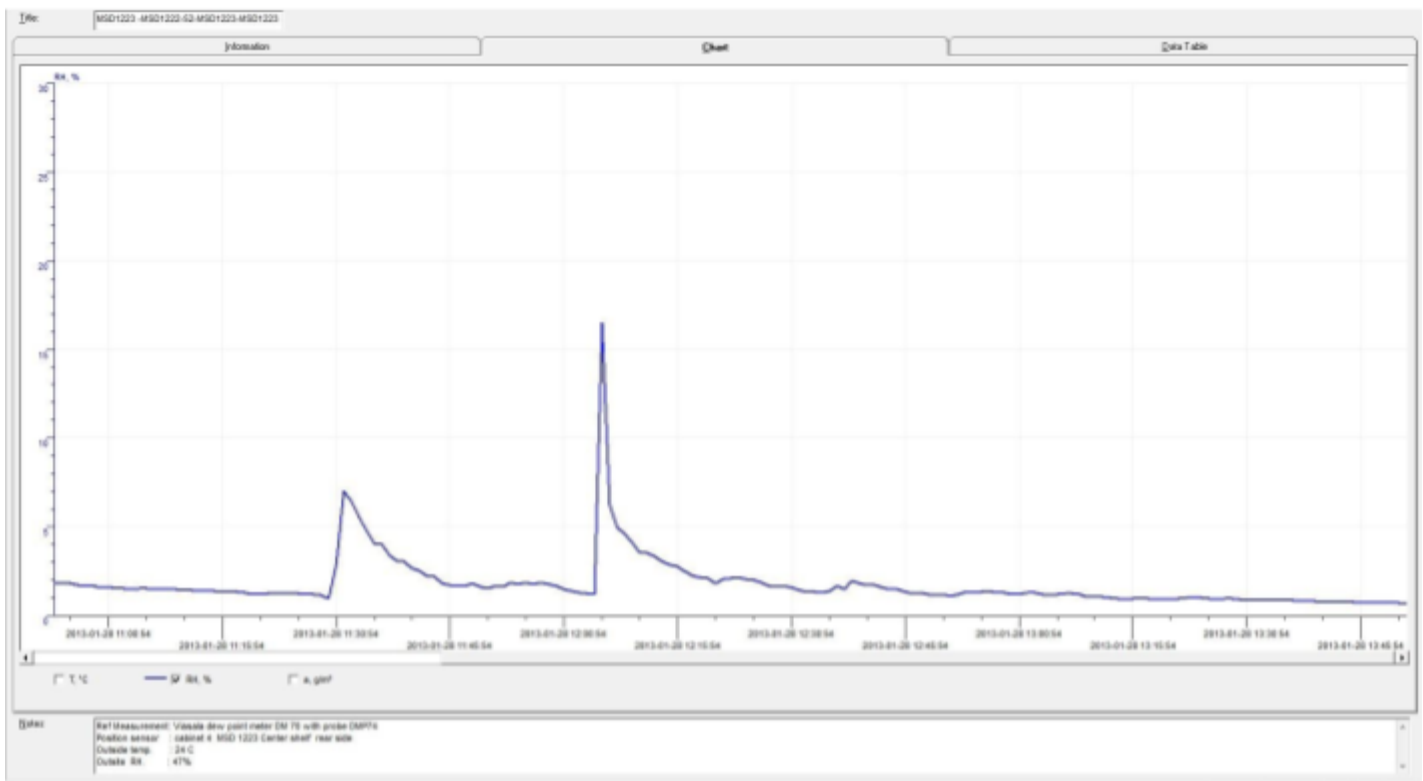


# MSD Cabinets

## Performance test



Configuration of cabinets: 1x MSD-1222  
3x MSD-1223

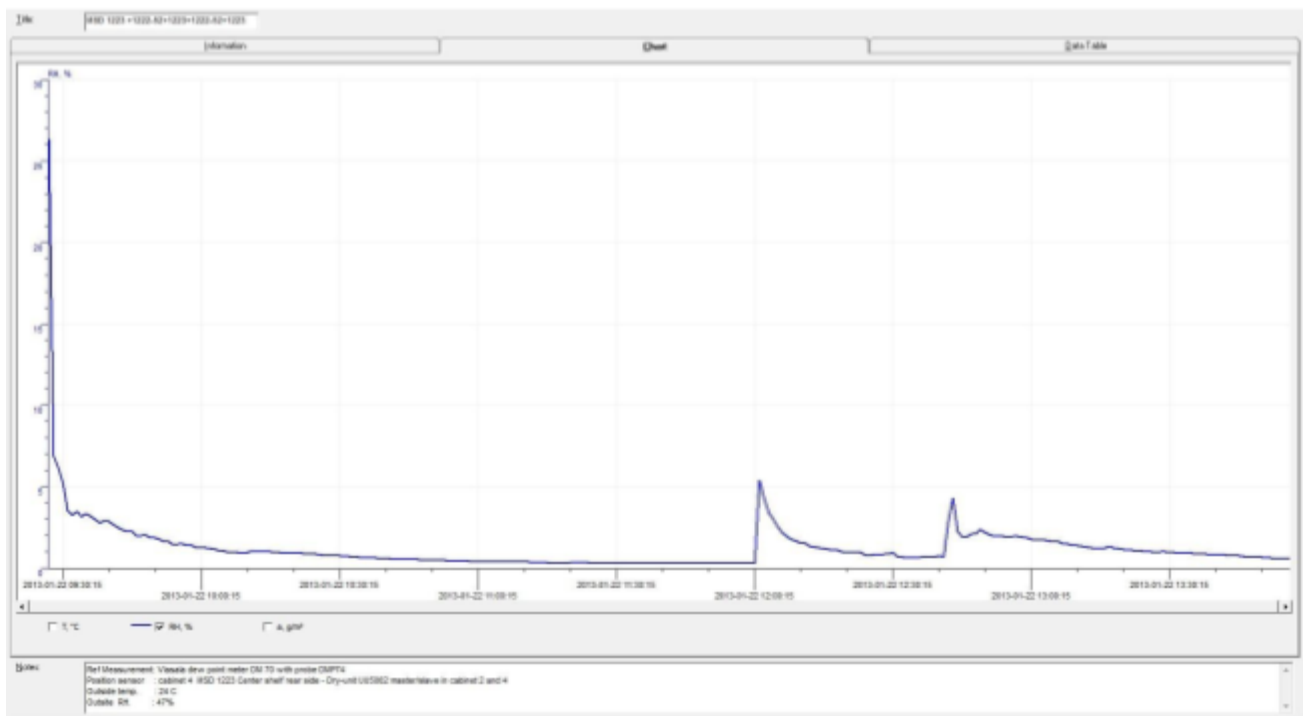


# MSD Cabinets

## Performance test



Configuration of cabinets: 2x MSD-1222  
3x MSD-1223  
Master and slave U-5000 series drying unit



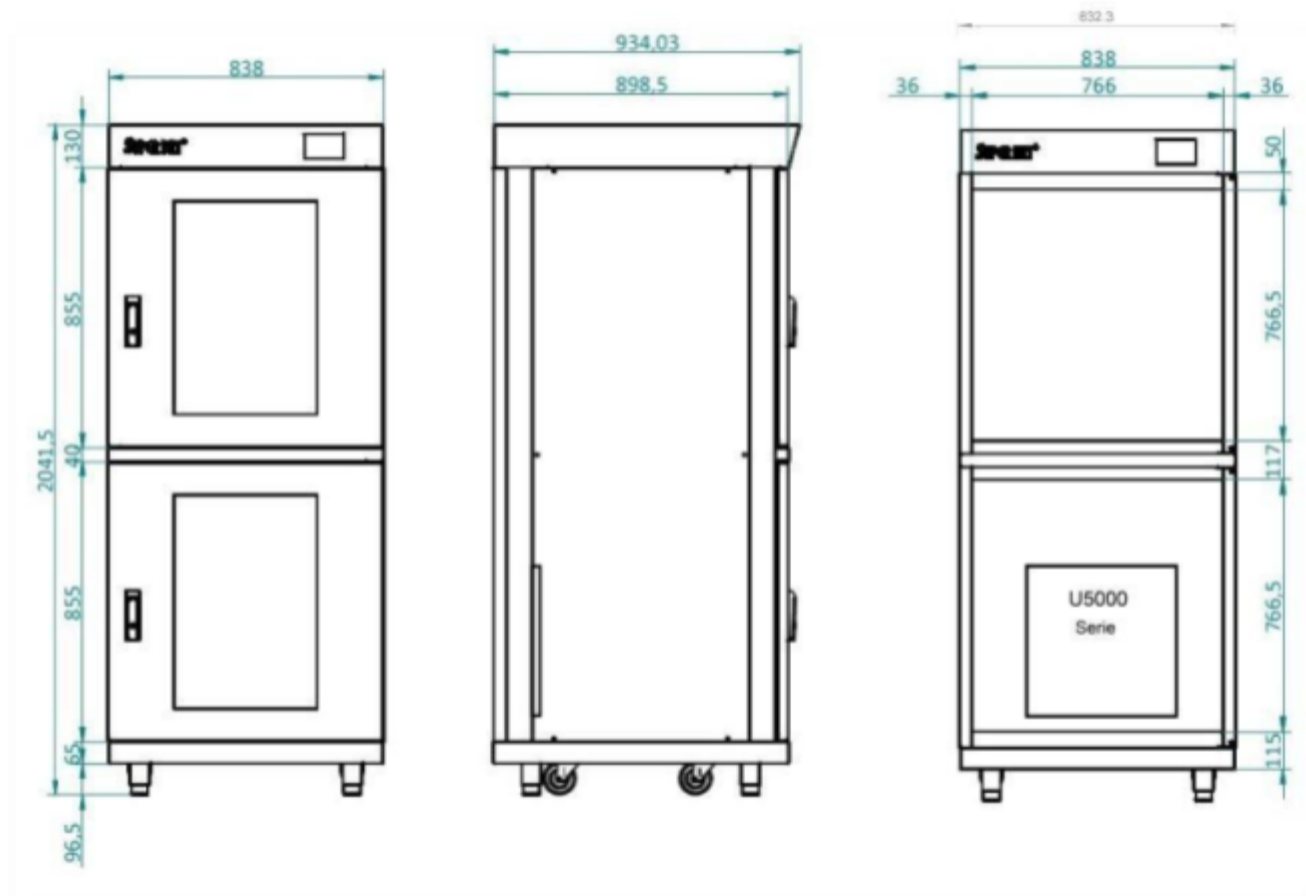
## Test conditions

- ✓ Instrument: Vaisala
- ✓ Type of dew point sensor: Rotronic sensor
- ✓ Accuracy of dew point sensor:  $\pm 0,3^{\circ} \text{C}$  at  $+ 20^{\circ} \text{C}$  ( $+ 68^{\circ} \text{F}$ )
- ✓ Location of sensors: In the direct surroundings of the cabinet sensor
- ✓ Ambient conditions: Hum.  $50 \pm 5\% \text{ rH}$ ,  $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , Pressure  $994 \pm 20 \text{ hPa}$
- ✓ Door openings: 2 door openings, 15 sec. (average RH 0,70%)

For more detailed test results, please refer to our website.

# MSD Cabinets

## Technical drawings



Dimensions mentioned in mm.

## Shelves

Number of different types of shelves that can be mounted in the cabinet

Number of shelves bottom section	2	3	4	5	6	7	8
Distance (in mm) between shelves if equally divided	375	290	170	130	90	65	50
Remaining space between top shelf and middle beam	310	75	115	75	115	115	155

Number of shelves top section	2	3	4	5	6	7	8
Distance (in mm) between shelves if equally divided	375	290	170	130	90	65	50
Remaining space between top shelf and top cabinet	310	75	115	75	115	115	155

## MSD Cabinets

### Options



#### SMD Reel rack with reel supports

L x W = 530 x 265 mm incl. 18 reel supports.

*Item number 20014005*



#### Reel support

Additional reel supports for 20014005.

*Item number 20014201*



#### Heater SH-1200

Functions based on circulating air, digitally controlled up to max. 40°C, serving to support and dry your component parts according to IPC-J-STD 033C.

*Item number 21001510*



#### Humidity alarm signal lamp

Two-color (orange/green or red/green), magnetically fixed, providing optical signals on operational states and exceeded limit values. Operates on 24V.

*Item number 20016030*



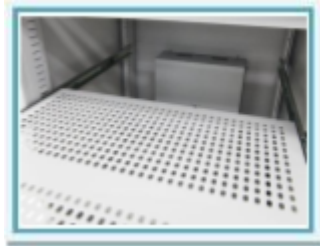
#### N<sup>2</sup> Autoflow system

The autoflow system is developed to use in combination with a Totech drying cabinet. The device is used for the quick removal of moisture in the cabinet after the door has been opened. The drying process is realised by using nitrogen (N<sup>2</sup>), which is added automatically after the door has been closed. (by means of adjustable timer function).

*Item number 22613066*

## MSD Cabinets

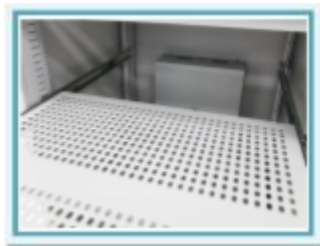
### Options



#### ESD safe coated shelves 100% extractable (max 30 kg)

Long version (W x D) 735 x 740 mm  
*Item number 20011740*

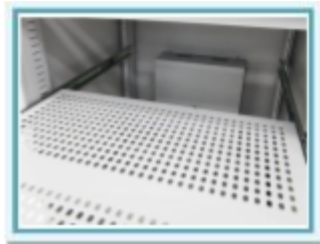
Short version (W x D) 735 x 580 mm  
*Item number 20017401*



#### Stainless steel shelves 100% extractable (max 30 kg)

Long version (W x D) 735 x 740 mm  
*Item number 2001742*

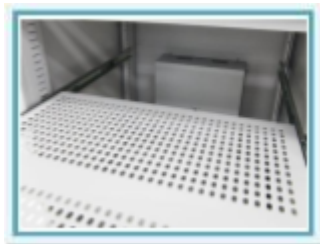
Short version (W x D) 735 x 580 mm  
*Item number 20011743*



#### ESD safe coated shelves 100% extractable (max 50 kg)

Long version (W x D) 735 x 740 mm  
*Item number 20011747*

Short version (W x D) 735 x 580 mm  
*Item number 20011746*



#### Stainless steel shelves 100% extractable (max 50 kg)

Long version (W x D) 735 x 740 mm  
*Item number 2001749*

Short version (W x D) 735 x 580 mm  
*Item number 20011748*



#### U-5003 slave unit

The drying unit U-5003 slave unit is in hardware the same as a standard U-5003. However, it is equipped with special software to enable communication between master and slave drying units. The main drying unit is equipped with an upgraded software as well. The communication between the drying units is established by means of a Y-cable with 6-pole connectors.

*Item number 47005055*

## MSD Cabinets

### Options



#### SMD Reel spring holder on extendable shelf

The Reel spring holders are suitable for all types of reels.  
4 pcs mounted on shelf.

*Item number 12001400*



#### X Feeder system

This feeder rack is suitable for Siemens X Feeder systems.  
Sold in combination with reel rack.

*Item number 46204004*



#### S Feeder system

This feeder rack is suitable for S Feeder systems.  
Sold in combination with reel rack.

*Item number 46204009*



#### Hygroclip 2

Probe with maximum accuracy for all climate measurements.

*Item number 47000027*

Exchange calibrated sensor:

*Item number 47000040*



#### Humidity calibrator Hygropalm 22

Precision measuring device for calibrating sensors.

Set including Hygroclip sensor, case and cable:

*Item number 20001019*

Hygropalm only:

*Item number 20001016*

## MSD Cabinets

### Options



#### MSL 2.0 software for 1000 components

Software solution for the monitoring of moisture sensitive components and their MSL states during storage and processing in the production. The exact drying state individually for each component is monitored and displayed with the software. One of the possibilities is that it can read out multiple HC2A-S sensors. To adjust storage conditions, picking of stock, removal of used parts and more stock control. A complete history for each component is traceable up to the full processing. The evaluation of the drying conditions is based on the requirements of the IPC / JEDEC J-STD-033B1 directive.

*Item number 20010036*



#### MSL software upgrade with additional 1000 components

Upgrade to monitor an additional 1000 components

*Item number 200174502*



#### Totech Monitor software

Realtime cabinet monitoring with alarm function, sending e-mails with detailed information on the status of the cabinet. History data files with graphical overview

*Item number 47000583*



#### Ventilation channel MSD cabinet

Used to connect multiple MSD cabinets

*Item number 21001800*