A Member of the ASYS Group

SUPER DRY®

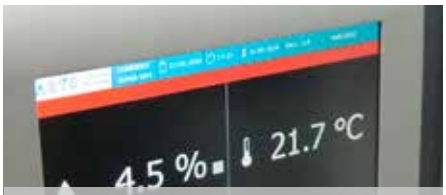
Totech EU®

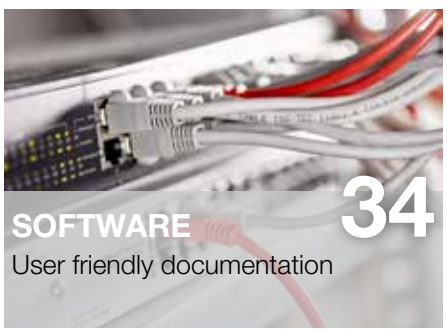
MORE THAN JUST DRY AIR

PRODUCT CATALOGUE

CONTENTS

DRYING CABINETS





SDB SERIES
ENTRANCE MODEL

Reliable and easy to use

FEATURES:
- Maintenance-free U-4000 drying unit with integrated fan
- ESD safe design (IEC 61340-5-1)
- User-friendly humidity visualisation through hygrometer
- Coated shelves
- Lockable doors
- Relative air humidity below 5% RH

OPTIONS:
- SMD reel rack
- Honeycomb module for IC tubes, etc.
- Additional shelves

For more options, see page 28.

SDB SERIES

The drying cabinets of the SDB series have been specifically designed as low-cost entrance models and feature only the basic functions. The patented U-4001 drying unit guarantees constant low relative humidity for medium to long-term storage.

	SDB 151-40	SDB 1104-40	SDB 1106-40	
Ext. dimensions (WHD)	500 x 630 x 580 mm	1200 x 1840 x 660 mm	1200 x 1840 x 660 mm	
Int. dimensions (WHD)	490 x 560 x 530 mm	1190 x 1533 x 630 mm	1190 x 1533 x 630 mm	
Effective capacity	135 l	1139 l	1139 l	
Weight	37 kg	155 kg	155 kg	
Power consumption	24 W/h	24W/h	24 W/h	
Number of shelves	3	5	5	

Characteristics

U-4001 series dryer:
Air drying to below 2% RH
Regeneration: static (timer-controlled)

Sensor:
Standalone battery operated humidity measurement device, accuracy +/- 5% RH
Offset configuration

Performance:
30 min recovery time after door opening to below 5% RH

Control:
No integrated control
Display of climate data through hygrometer

Convection:
Forced air circulation through integrated fan

Documentation:
External data logger optional

SD SERIES
ROBUST DESIGN

Advanced technology and robust design

FEATURES:
- Maintenance-free U-2000 series drying unit with integrated fan
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring of RH
- Door alarm, humidity alarm
- Digital control panel with humidity and temperature display
- Lockable doors
- Regulated relative humidity
- Suitable for storage and drying according to IPC standards
- Interruption-free and redundant drying by means of 2 drying units (SD 1104, SD 1106 and SD 1704 only)

OPTIONS:
- Automatic nitrogen unit
- Heater (40°C)
- Feeder rack

For more options, see page 28.

SD SERIES

The SD series comprises a wide range of cabinet models. Thanks to their advanced design, chrome steel standard shelves and reliable drying units, they offer maximum protection for medium to long-term storage.

	SD 151-21	SD 302-21	SD 502-21	SD 702-21	SD 1104-21	SD 1106-21	SD 1704-21
Ext. dimensions (WHD)	500 x 630 x 580 mm	500 x 1127 x 640 mm	880 x 898 x 740 mm	620 x 1840 x 768 mm	1200 x 1840 x 760 mm	1200 x 1840 x 760 mm	1200 x 1840 x 960 mm
Int. dimensions (WHD)	490 x 560 x 530 mm	490 x 1124 x 594 mm	870 x 830 x 702 mm	610 x 1533 x 735 mm	1190 x 1533 x 630 mm	1190 x 1533 x 630 mm	1190 x 1560 x 910 mm
Effective capacity	135 l	320 l	496 l	680 l	1139 l	1139 l	1700 l
Weight	37 kg	68 kg	70 kg	152 kg	176 kg	176 kg	197 kg
Power consumption	35 W/h	35 W/h	35 W/h	35 W/h	70 W/h	70 W/h	70 W/h
Number of shelves	3	7	3	5	5	5	5

Characteristics

U-2000 series dryer:
Air drying to below 2% RH
Regeneration: static (timer-controlled)

Sensor:
Integrated sensor, accuracy +/- 3% RH
Offset configuration

Performance:
30 min recovery time after door opening to below 5% RH

Control:
Humidity and temperature display with parameter value input; humidity and door monitoring functions

Climate control:
Optional heating up to 40°C
Forced air circulation through integrated fan

Documentation:
External data logger optional

SD+ SERIES
PRECISION DRYING

Economical and precise

FEATURES:
- Maintenance-free U-2000 series drying unit with integrated fan
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door alarm, humidity alarm
- Lockable doors
- Dynamic regeneration
- Integrated data logger
- Including software for PC visualisation
- Online monitoring
- Ethernet interface
- Regulated relative humidity

OPTIONS:
- Additional shelves
- Heater (40°C)
- Alarm light
- N^2 (nitrogen)

For more options, see page 28.

SD+ SERIES

The models of the SD+ series are essentially upgraded versions of the SD series. The cabinets are equipped with high-precision sensors. Dynamic regeneration of the drying units minimizes power consumption. A second drying unit ensures uninterrupted and redundant drying (SD+ 1104 and 1106 only). Standard equipped with integrated datalogging to removable storage. Data collection and optional datalogging to PC or server through standard ethernet interface available.

	SD+ 302-22	SD+ 1104-22	SD+ 1106-22	
Ext. dimensions (WHD)	500 x 1127 x 640 mm	1200 x 1840 x 760 mm	1200 x 1840 x 760 mm	
Int. dimensions (WHD)	490 x 1124 x 594 mm	1190 x 1533 x 630 mm	1190 x 1533 x 630 mm	
Effective capacity	320 l	1139 l	1139 l	
Weight	68 kg	176 kg	176 kg	
Power consumption	24 W/h	48 W/h	48 W/h	
Number of shelves	7	5	5	

Characteristics

U-2000 series dryer:
Air drying to below 2% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor,
accuracy +/- 0.8% RH
& +/- 0.2°C

Performance:
30 min recovery time
afterdoor opening
to below 5% RH

Control:
PLC with limit value input through
text display or web interface
Door, temperature and humidity
alarm

Climate control:
Optional heating up to 40°C
Forced air circulation
through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

HSD SERIES
EXTRA-FAST DRYING

Maximum process safety

FEATURES:
- Maintenance-free U-5000 series drying unit with integrated fan
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door alarm, humidity alarm
- Lockable doors
- Regulated relative humidity below 0.5% RH
- Dynamic regeneration
- Integrated data logger
- Online monitoring
- Free software for visualisation on PC
- Ethernet interface

OPTIONS:
- Automatic nitrogen unit
- Heater (40°C)
- Alarm light

For more options, see page 28.

HSD SERIES

The models of the HSD series come with a high-performance drying unit, precision measuring technology and an intuitive control panel.

	HSD 1104-52	HSD 1106-52	HSD 1704-52	
Ext. dimensions (WHD)	1200 x 1675 x 805 mm	1200 x 1675 x 805 mm	1200 x 1675 x 1105 mm	
Int. dimensions (WHD)	1190 x 1533 x 630 mm	1190 x 1533 x 630 mm	1190 x 1533 x 910 mm	
Effective capacity	1179 l	1179 l	1700 l	
Weight	189 kg	189 kg	197 kg	
Power consumption	58 W/h	58 W/h	58 W/h	
Number of shelves	5	5	5	

Characteristics

U-5000 series dryer:
Air drying to below 0.5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor, accuracy +/- 0.8% RH & +/- 0.2°C

Performance:
15 min recovery time after door opening to below 1% RH

Control:
PLC with limit value input through text display or web interface
Door, temperature and humidity alarm

Climate control:
Optional heating up to 40 °C

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

MSD SERIES
MODULAR DESIGN

The cabinet that grows with your requirements.

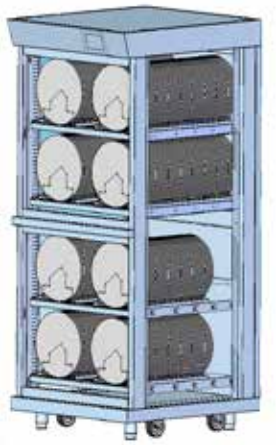
FEATURES:
- Maintenance-free U-5000 series drying unit with integrated fan
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door alarm, humidity alarm
- Coated sliding shelves
- Lockable doors
- Regulated relative humidity below 0.5% RH
- Dynamic regeneration
- Integrated data logger
- Online monitoring
- Free software for visualisation on PC
- Ethernet interface
- Castors and adjustable legs

OPTIONS:
- Passive MSD 1223 add-on cabinet
- Automatic nitrogen unit
- Additional drying unit
- Convection module with heater (40 °C)

For more options, see page 28.

MSD SERIES

The MSD drying cabinets can grow with your demand. The modules are designed for easy extension to suit your needs.



	MSD 1222-54	MSD 1223-00 add-on cabinet
Ext. dimensions (WHD)	840 x 2040 x 900 mm	840 x 2040 x 900 mm
Int. dimensions (WHD)	830 x 1780 x 850/730 mm	830 x 1780 x 850 mm
Effective capacity	1200 l	1255 l
Weight	140 kg	125 kg
Power consumption	30 W/h	30 W/h
Number of shelves	4	4

Capacity MSD 1222-54:	
Example storage	
Reels: 352	
Diameter: 330 mm	
Thickness: 8 mm	

Characteristics

U-5000 series dryer:
Air drying to below 0.5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor, accuracy +/- 0.8% RH & +/- 0.2°C

Performance:
15 min recovery time after door opening to below 1% RH

Control:
PLC with limit value input through touchscreen display or web interface
Door, temperature and humidity alarm

Climate control:
Optional heating up to 40°C
Forced air circulation

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

XSD SERIES
HIGH END TECHNOLOGY

Perfection down to the last detail

FEATURES:
- Maintenance-free U-5000 series drying unit with integrated fan (XSDB & XSD series only)
- Insulated cabinet body
- 4“ touchscreen display (optional on XSDC 601-02)
- Powerful radial fan
- Heater (40°C) (XSDB)
- Heater (60°C) (XSD)
- Cooling 2-20°C (XSDC)
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door, humidity and temperature alarm
- Sliding grate shelves (XSD only)
- Lockable doors
- Regulated relative humidity below 0.5% RH
- Dynamic regeneration (XSDB & XSD series only)
- Integrated data logger (Not for XSDC 601-01)
- Free software for visualisation on PC
- Ethernet interface (Not for XSDC 601-01)
- Interior LED light (XSD & XSDC series only)

OPTIONS:
- Drawers
- Heater (60°C) (XSDB)
- 7“ touchscreen display

For more options, see page 28.

XSDB SERIES

The premium cabinets of the XSD series combine high-performance drying along stable temperature and humidity curves with top-class design and craftsmanship.

	XSDB 701-54	XSDB 1412-54	
Ext. dimensions (WHD)	700 x 1930/2110 x 808 mm	1432 x 1930/2110 x 808 mm	
Int. dimensions (WHD)	544 x 1504 x 600 mm	1315 x 1504 x 685 mm	
Effective capacity	490 l	1390 l	
Weight	142 kg	230 kg	
Power consumption	230 W/h (40°C)	230 W/h (40°C)	
Number of shelves	5	10	

Characteristics

Dryer:
Air drying to below 0.5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor, accuracy +/- 0.8 RH & +/- 0.2°C

Performance:
10 min recovery time after door opening to below 0.5% RH

Control:
PLC with limit value input through touchscreen display or web interface
Door, temperature and humidity alarm

Climate control:
Heating up to 40°C (optional up to 60°C)
Forced air circulation through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

XSD SERIES & XSDV SERIES

The XSD series is based on the XSDB series, but features a stainless steel cabinet body, interior LED lighting, 60°C heater as well as sliding shelves with telescopic rails.

The XSDV series are made to measure insulated cabinets.

	XSD 701-54	XSD 1412-54	XSDV	
Ext. dimensions (WHD)	700 x 1930/2110 x 808 mm	1432 x 1930/2110 x 808 mm	made to measure	
Int. dimensions (WHD)	544 x 1504 x 600 mm	1315 x 1504 x 685 mm	made to measure	
Effective capacity	490 l	1390 l	made to measure	
Weight	142 kg	230 kg	made to measure	
Power consumption	230 W/h (40°C)	230 W/h (40°C)	made to measure	
Number of shelves	5	10	made to measure	

Characteristics

Dryer:
Air drying to below 0.5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor, accuracy +/- 0.8% RH & +/- 0.2°C

Performance:
10 min recovery time after door opening to below 0.5% RH

Control:
PLC with limited value input through touchscreen display or web interface
Door, temperature and humidity alarm

Climate control:
Heating up to 60°C
Forced air circulation through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

XSDC SERIES

The XSDC series is the ideal solution for controlled cooling.
It provides a stable temperature for all cooling storage needs like solder paste.

	XSDC 601-01	XSDC 601-02	
Ext. dimensions (WHD)	702 x 2060 x 672 mm	702 x 2060 x 672 mm	
Int. dimensions (WHD)	550 x 1526 x 579 mm	550 x 1526 x 579 mm	
Effective capacity	466 l	466 l	
Weight	113 kg	113 kg	
Power consumption	60-100 W/h	60-100 W/h	
Number of shelves	3	3	

Characteristics

Dryer:
No drying available

Sensor:
Integrated Rotronic sensor, accuracy 0.2°C
(XSDC 601-02 only)

Performance:
20 min recovery time after 10 hour power down to below 5°C

Control:
PLC with limit value input through text display and web interface (XSDC 601-02)
Door and temperature alarm

Climate control:
Cooling 2-20°C
Forced air circulation through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software (all XSDC 601-02 only)

XSDC SERIES
LONG TERM STORAGE

Drying combined with cooling

FEATURES:
- Maintenance-free U-5000 series drying unit with integrated fan
- Insulated cabinet body
- Powerful radial fan
- Cooling 10°C below environment temperature
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door, humidity & temperature alarm
- Lockable doors
- Regulated relative humidity below 5% RH
- Dynamic regeneration
- Integrated data logger
- Online monitoring
- Free software for visualisation on PC
- Interior lighting

OPTIONS:
- Drawers
- Humidity & temperature alarm light
- 7“ touchscreen display

For more options, see page 28.

XSDC LONG TERM STORAGE

The XSDC Long Term Storage cabinet provides a stable low temperature and humidity for all long term storage needs. Data logging of temperature and alarms is achieved with the integrated data logger. Clean air filters can be equipped to provide additional component protection.

	XSDC 1412-54	
Ext. dimensions (WHD)	1432 x 1930/2110 x 808 mm	
Int. dimensions (WHD)	1315 x 1504 x 685 mm	
Effective capacity	1390 l	
Weight	255 kg	
Power consumption	790 W/h	
Number of shelves	10	

Characteristics

Dryer:
Air drying to below 5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor,
Accuracy +/- 0.8% RH
& +/- 0.2°C

Performance:
30 min recovery time after
door opening to below 5% RH

Control:
PLC with limit value input through touchscreen or web interface
Door, humidity and temperature alarm

Climate control:
Cooling 10°C below environment temperature
Forced air circulation through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

XSDR SERIES
RESET PROCESS AUTOMATION

Reset of multiple MSL level components at the same time

FEATURES:
- Maintenance-free U-2000 series drying unit with integrated fan
- MSL timers for embedded containers for each chamber
- Touchscreen display
- Regulated humidity and temperature independently for each chamber (up to 60°C and below 1% RH)
- Insulated cabinet body
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Door, humidity & temperature alarm
- Lockable top chamber door
- Dynamic regeneration
- Integrated data logger
- Online monitoring
- Free software for visualisation on PC
- Interior LED lighting
- SMD reel racks with reel support

OPTIONS:
- SMD reel rack with reel support
- Humidity & temperature alarm light

For more options, see page 28.

XSDR SERIES

The XSDR series has an outstanding performance for drying moisture sensitive components and pcb's. It is equipped with two chambers that are individually adjustable. It is developed to reset the floorlifetime of components, based on our Reference Table (p. 27). It has an integrated timer that can be manually set, and it will notify the user when the component is ready for use again. The dynamic drying units of the U-2000 series reach very reliable low humidity values of ≤1%RH and automatically regenerate if necessary. As a result of an insulated double metal sandwich construction, a precise temperature of 60°C can be reached with a very low power consumption.

	XSDR 702-24
Ext. dimensions (WHD)	700 x 2060 x 850 mm
Int. dimensions (WHD)	582 x 696 x 685 mm
Effective capacity	260 l
Weight	138 kg
Power consumption	30 W/h per chamber
Number of shelves per chamber	2 (additional shelves available as an option)

Characteristics

Dryer:
Air drying to below 1% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor,
Accuracy +/- 0.8% RH
& +/- 0.2°C

Performance:
30 min recovery time after
door opening to below 5% RH

Control:
PLC with limit value input through touchscreen display or web interface
Door, humidity and temperature alarm

Climate control:
Heating up to 60°C for each chamber
Forced air circulation through integrated fan

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

CSD SERIES
EXTRA FAST DRYING

FAST ACTIVE DRYING

FEATURES:
- 7 inch touchscreen HMI
- ESD safe design (IEC 61340-5-1)
- Limit value monitoring (RH; °C)
- Data logger
- Ethernet interface
- Height-adjustable legs
- ESD castors

CSD Series:
- Maintenance-free U-7000 series drying unit with integrated fan
- Controlled relative humidity below 0.5% RH
- Dynamic Regeneration

CSDN Series:
- Maintenance-free nitrogen pneumatic concept
- Controlled relative humidity below 5% RH
- Dynamic nitrogen control

OPTIONS:
- Humidity alarm
- Lockable doors
- Alarm light
- Additional shelves
- SMD Reel Rack
- Extenable feedersystem
- Interior lighting
- MES connection
- PULSE connection
- CDC Connect

CSD Series:
- Heater 40°C

CSDN Series:
- 3 separate chambers
- Pressure monitoring

CSD SERIES

Our CSDN series offers a high-quality entry into nitrogen storage. We pay attention to an optimal price-performance ratio by using high-quality control and measuring technology in our standard cabinets.

Our CSD series offers a complete equipment concept. These cabinets can be equipped with 5, 8 or 11 doors. We attach great value to our high-performance dryers of the U-7000 series. We guarantee stable moisture values of less than 1% RH even at the highest cabinet usage. Optionally, we utilize rear doors, stainless steel components and high-performance sensors for measuring H^20 or O^2.

	CSDN 1106-16	CSD 1005-76	CSD 1608-76	CSD 2211-76	
Ext. dimension (WHD)	1200 x 1840 x 658 mm	1510 x 1805 x 650 mm	2140 x 1805 x 650 mm	2770 x 1805 x 650 mm	
Int. dimensions (WHD)	1190 x1533 x 630 mm	1210 x 1610 x 620 mm	1840 x 1610 x 620 mm	2470 x 1610 x 620 mm	
Effective capacity	1139 l	1040 l	1670 l	2250 l	
Weight	Ca. 170 kg	Ca. 340 kg	Ca. 460 kg	Ca. 580 kg	
Power consumption	Ca. 15 W/h	Ca. 90 W/h	Ca. 110 W/h	Ca. 120 W/h	
Number of shelves	5	5	8	11	

Dryer:
Maintenance free drying unit with integrated fan (CSDN Series: only nitrogen concept)

Sensor:
Integrated sensor, accuracy +/- 0.8% RH & +/- 0.2°C

Performance:
1 min recovery time after door opening to below 1% RH (CSDN Series: 15 min recovery time after door opening to below 5% RH)

Control:
Windows Panel PC control:
Limit value settings through display or web interface
Door and humidity alarm function

Climate control:
Optional heating up to 40°C
Forced air circulation through integrated fan
(Not for CSDN Series)

Documentation:
Integrated data logger
Climate data recording, event logs

ESDA SERIES
ACRYLIC CABINETS

Transparency combined with versatility

FEATURES:
- High quality polycarbonate cabinet body
- Lockable doors
- U-2000 series drying unit with integrated fan (ESDA 402-21 and 804-21 only)
- ESD safe design
- Door and humidity alarm (ESDA-402-21 and ESDA-804-21 only)
- Digital control panel (ESDA-402-21 and ESDA-804-21 only)

OPTIONS:
- External signal lamp
- ESD wheels
- Nitrogen unit
- Standalone U-4000 series drying unit

For more options, see page 28.

ESDA SERIES

The cabinets of the ESDA series have been designed with transparency in mind. They come with a wide range of equipment options, such as nitrogen units, various different dryers, ESD safe design, etc.

	ESDA 201-00	ESDA 402-00	ESDA 804-00	ESDA 402-21	ESDA 804-21	
Ext. dimensions (WHD)	574 x 750 x 517 mm	574 x 1690 x 517 mm	1152 x 1690 x 517 mm	574 x 1690 x 517 mm	1152 x 1690 x 517 mm	
Int. dimensions (WHD)	560 x 730 x 480 mm	560 x 1480 x 480 mm	1120 x 1480 x 480 mm	560 x 1480 x 480 mm	1120 x 1480 x 480 mm	
Effective capacity	200 l	400 l	800 l	400 l	800 l	
Weight	23 kg	59 kg	87 kg	60 kg	88 kg	
Power consumption	/	/	/	35 W/h	35 W/h	
Number of shelves	2	5	10	5	10	

Characteristics

U-2000 & U-4001 series dryer:
Air drying to below 2% RH
Regeneration: static
(timer-controlled)

Sensor:
No integrated sensor
(xxx-21 with integrated sensor
accuracy +/- 3% RH)

Performance:
30 min recovery time after
door opening to below 5% RH
(only with drying unit)

Control:
Humidity and temperature
display with parameter value
input; humidity and door
monitoring functions
(xxx-21 only)

Convection:
Forced air circulation
through integrated fan
(only with drying unit)

Documentation:
External data logger optional

SDR SERIES
WALK-IN DRY ROOMS

Made to measure dry rooms

OPTIONS:

- Maintenance-free U-5000 series drying unit with integrated fan (also available with U-7000 series drying unit)
- Insulated wall panels
- Heater (40°C) with powerful radial fan
- Limit value monitoring (RH; °C)
- Door, humidity and temperature alarm
- Lockable doors
- Sight panels
- Regulated relative humidity below 5%
- Dynamic regeneration
- Integrated data logger
- Online monitoring
- Free software for visualisation on PC
- 4“ / 7“ Touchscreen display

SDR SERIES

Made to measure dry rooms. We assist you in choosing the right dimensions, colour, drying capacity and software for your specific application. We use top-quality series components and advanced technology to build affordable dry rooms that meet your requirements.

Characteristics

U-5000/U-7000 series dryer:
Air drying to below 5% RH
Regeneration: dynamic

Sensor:
Integrated Rotronic sensor,
Accuracy +/- 0.8% RH
& +/- 0.2°C

Performance:
Depending on dry room size

Control:
PLC with limit value input through display or web interface
Door, humidity and temperature alarm

Heating:
Active heating by means of integrated heater, up to 60°C (optional)

Documentation:
Integrated data logger
Climate data recording
Free Totech Viewer software

OPTIONAL EQUIPMENT AND ACCESSORIES

Options that make all the difference

	Additional shelves	Separation elements	SMD reel holders	Pull-out SMD reel holders	Reel holders on sliding shelves	External alarm lights	Height adjustable feet	ESD reels	Manual/ autom. nitrogen unit	Pull-out feeder system	Heater 40°/60°C	Honeycomb module for IC tubes, etc., also available with optical position indicator	Feeder holder	Data logger and software
SDB 151-40	coated	●	●				●		●/○		●/○			●
SDB 1104-40	coated	●	●	●			●	●	●/○		●/○	●	●	●
SDB 1106-40	coated	●	●	●			●	●	●/○		●/○		●	●
SD 151-21	chrome steel	●	●			●	●		●/●		●/○			●
SD 302-21	chrome steel	●	●			●	●		●/●		●/○			●
SD 502-21	chrome steel	●	●			●	●		●/●					●
SD 702-21	chrome steel	●	●			●	●	●	●/●				●	●
SD 1104-21	chrome steel	●	●	●		●	●	●	○/●		●/○	●	●	●
SD 1106-21	chrome steel	●	●	●		●	●	●	○/●		●/○		●	●
SD 1704-21	chrome steel	●	●			●	●	●	○/●	●	●/○	●	●	●
SD+ 302-22	chrome steel	●	●			●	●	●	●/●		●/○		●	●●
SD+ 1104-22	chrome steel	●	●	●		●	●	●	○/●		●/○	●	●	●●
SD+ 1106-22	chrome steel	●	●	●		●	●	●	○/●		●/○		●	●●
HSD 1104-52	stainless steel	●	●	●		●	●	●	○/●		●/○	●	●	●●
HSD 1106-52	stainless steel	●	●	●		●	●	●	○/●		●/○		●	●●
HSD 1704-52	stainless steel	●	●			●	●	●	○/●	●	●/○	●	●	●●
MSD 1222-54	coated/ stainless steel	●	●		●	●	●●		○/●		●/○	●	●	●●
MSD 1223-00	coated/ stainless steel	●	●		●		●●				●/○	●	●	
XSDB 701-54	stainless steel		●		●	●	●●	●	○/●		●●/●	●	●	●●
XSDB 1412-54	stainless steel		●		●	●	●●	●	○/●		●●/●	●	●	●●
XSD 701-54	stainless steel		●		●	●	●●	●	○/●		●●/●●	●	●	●●
XSD 1412-54	stainless steel		●		●	●	●●	●	○/●		●●/●●	●	●	●●
XSDV	coated/ stainless steel	●	●	●	●	●	●●	●	○/●	●	●/●	●	●	●●
XSDC 601-01	coated		●				●●	●						●
XSDC 601-02	coated		●				●●	●						●●
XSDC 1412-54	stainless steel	●	●	●	●	●	●●	●	○/●	●	●/●	●		●●
XSDR 702-54	stainless steel		●		●	●	●●	●			●●/●●			●●

● optional ●● standard ○ not available

REFERENCE TABLE

Our reference table offers you a survey of the drying times of your components.
Please read it dependent on component strength, MSL, temperature and humidity level.

Package Body	Level	Bake @ 60 °C + 5/-0 °C ≤ 1% RH		Bake @ 40 °C + 5/-0 °C ≤ 1% RH		Bake @ 25 °C + 5/-0 °C ≤ 1% RH		Bake @ 40 °C + 5/-0 °C ≤ 5% RH	
		Exceeding Floor Life by > 72 h	Exceeding Floor Life by < 72 h	Exceeding Floor Life by > 72 h	Exceeding Floor Life by < 72 h	Exceeding Floor Life by > 72 h	Exceeding Floor Life by < 72 h	Exceeding Floor Life by > 72 h	Exceeding Floor Life by < 72 h
Thickness < 0.5 mm (see Note 4)	2	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 4)	Not Required (see Note 3)	Not Required (see Note 3)
	2a	1 hour	1 hour	3 hours	2 hour	9 hours	6 hour	12 hours	8 hours
	3	1 hour	1 hour	6 hours	2 hour	18 hours	6 hour	22 hours	8 hours
	4	1 hour	1 hour	6 hours	2 hour	18 hours	6 hour	22 hours	8 hours
	5	1 hour	1 hour	6 hours	2 hour	18 hours	6 hour	23 hours	8 hours
	5a	2 hour	1 hour	7 hours	2 hour	21 hours	6 hour	26 hours	8 hours
Thickness > 0.5 mm ≤ 0.8 mm (see Note 4)	2	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)
	2s	6 hours	5 hours	1 day	18 hours	3 day	2 days	4 days	3 days
	3	6 hours	5 hours	1 day	18 hours	3 day	2 days	4 days	3 days
	4	6 hours	5 hours	1 day	18 hours	3 day	2 days	4 days	3 days
	5	6 hours	5 hours	1 day	18 hours	3 day	2 days	4 days	3 days
	5a	6 hours	5 hours	1 day	18 hours	3 day	2 days	4 days	3 days
Thickness > 0.8 mm ≤ 1.4 mm (see Note 4)	2	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)	Not Required (see Note 3)
	2a	12 hours	11 hours	2 days	2 days	6 days	5 days	8 days	7 days
	3	12 hours	11 hours	2 days	2 days	6 days	5 days	8 days	7 days
	4	15 hours	11 hours	3 days	2 days	9 days	6 days	10 days	7 days
	5	17 hours	11 hours	3 days	2 days	9 days	6 days	11 days	7 days
	5a	18 hours	11 hours	3 days	2 days	9 days	6 days	12 days	7 days
"Thickness > 1.4 mm ≤ 2.0 mm (see Note 4)	2	38 hours	30 hours	6 days	5 days	18 days	15 days	25 days	20 days
	2a	2 days	33 hours	7 days	6 days	21 days	18 days	29 days	22 days
	3	2 days	33 hours	9 days	6 days	27 days	20 days	37 days	23 days
	4	3 days	2 days	12 days	7 days	36 days	22 days	47 days	28 days
	5	4 days	3 days	14 days	9 days	42 days	27 days	57 days	35 days
	5a	5 days	4 days	20 days	14 days	60 days	42 days	79 days	56 days
Thickness > 2.0 mm ≤ 4.5 mm (see Note 4)	2	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
	2a	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
	3	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
	4	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
	5	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
	5a	5 days	4 days	20 days	17 days	60 days	50 days	79 days	67 days
Exception for BGA package > 17 mm x 17 mm or any stacked die package	2 -5a	64 days (See Note 2 and Note 4	As above per package thickness and moisture level	Not applicable	As above per package thickness and moisture level	Not applicable	As above per package thickness and moisture level	Not applicable	As above per package thickness and moisture level

Note 1: Table 4-1 is based on worst-case molded lead frame SMD packages. Users may reduce the actual bake time if technically justified (e.g., absorption/ desorption data, etc.). In most cases it is applicable to other non-hermetic surface mount SMD packages. If parts have been exposed to > 60% RH it may be necessary to increase the bake time by tracking desorption data to insure parts are "dry".
Note 2: For BGA packages > 17 mm x17 mm, that do not have internal planes that block the moisture diffusion path in the substrate, may use bake times based on the thickness/moisture level portion of the table.
Note 3: Baking not required if Floor Life exposure is limited to < 30C & < 60%RH for thin (< 1.4 mm) MSL2 devices. This is due to the moisture diffusion behavior of the thin devices, which were fully saturated after the absorption at MSL 2 (168 hours @85C/60%RH).
Note 4: The bake times specified are conservative for packages without blocking planes or stacked die. For a stacked die or BGA package with internal planes that impede moisture diffusion the actual bake time may be longer than that required in Table 4-1.

LONG TERM STORAGE

STORAGE AS A SERVICE

Long Term Storage Solutions, LTS2 Helping manage component obsolescence

For component distributors & companies forced to forward purchase to guard against the impact of component obsolescence on their final product, LTS2 provides you with the perfect solution. A safe, secure, quarantined area, that is compliant to international standards & uses patented technologies for temperature and humidity control, ensures components are kept in optimal conditions, typically 14˚C and <5% rH. You can access data online to check the status of your inventory in real time.

There is a growing trend in the electronics industry of increasing component lead-times, whilst reducing development cycles make it increasingly necessary to hold extra stocks on the operational side. Rapid changes in packaging design and material force companies to purchase forward quantities to guard against the impact of component obsolescence on their final product. Warranty management, and last time buys mean we see growing requirements for specialised storage services. Whether it's for 6 months or 20 years, we fill that space.

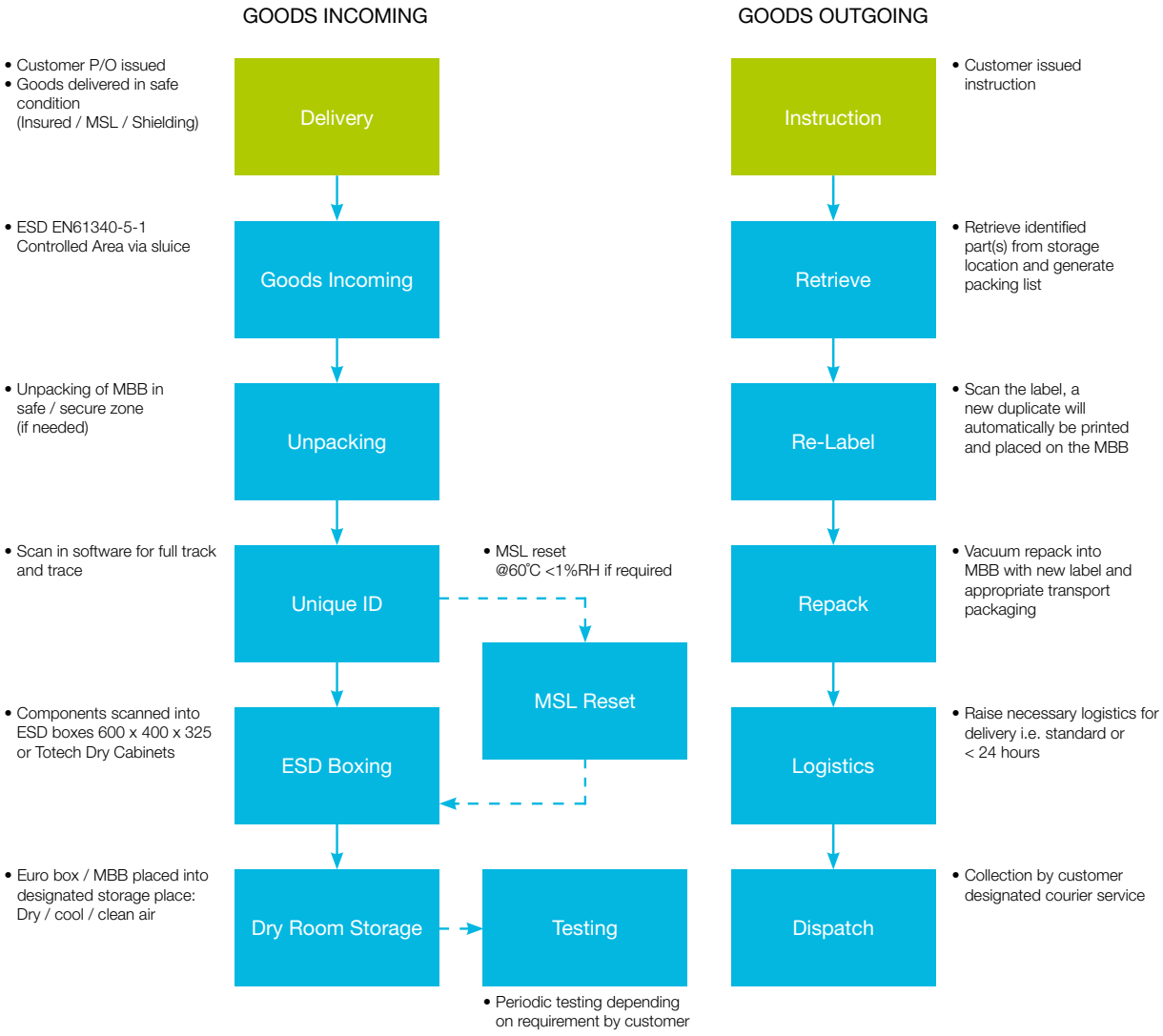
FORM, FIT AND FUNCTION

In particular, many electronic components come under the category of being Moisture Sensitive Devices (MSDs) and storage of such components requires precise and reliable environmental control.

Choosing the right method of storage can allow components to reliably perform to specification long after the original manufacturers guarantees have expired. It can slow the aging process allowing components to retain their 'Form, Fit and Function' credentials.

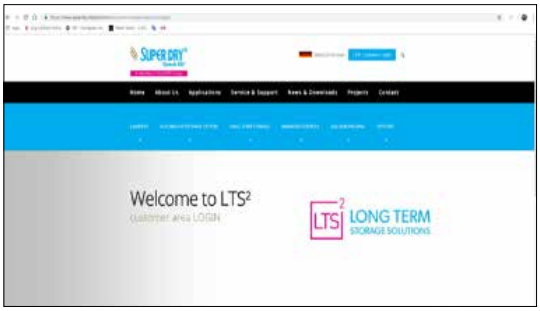
LTS² provides the third-party component storage solution that resolves fundamental obsolescence management issues.

PROCESS MAP SUPERDRY-TOTECH MSL AND LONG TERM STORAGE



LONG TERM STORAGE

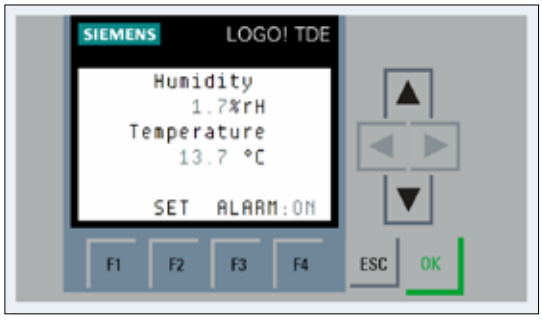
STORAGE AS A SERVICE



ONLINE-DATABASE

The components can be traced through our online real-time database. All component data is displayed on an user friendly web page.

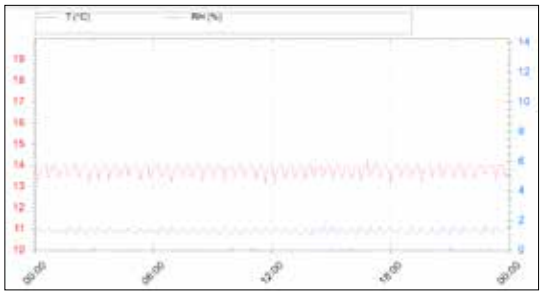
By logging in to our website, it is possible to view the data in tabular format and download it in Excel format for further analysis.



ONLINE MONITORING 24/7

It is possible for our customers to read out the real-time online monitor at any time.

This online monitor shows the live values of the temperature and relative humidity.



HISTORY GRAPH

We offer the possibility to receive a graphical overview on a regular basis. (e.g. monthly/quarterly/annual)

In this overview, the trend of the temperature and relative humidity will be visualized in a straightforward manner.

24/7 SECURITY

To ensure the safety and security of the long-term storage space, we have installed highly effective and sustainable systems. In doing so, we can ensure the security of the storage space for years to come.

Advanced camera system
Camera systems around the building, which monitor visuals and temperature in the immediate surrounding area and the buildings next to our storage space.

Direct connection to the alarm central
All alarms transmitted through the central alarm system are under the direct surveillance of the local emergency services.

Fire prevention
Our Minimax fire protection system includes a Novec MX 1230 fire extinguishing system.
In the event of a fire, any secondary damage is excluded by avoiding powder, water or foam.

ESD safe room
All rooms are ESD safe and can only be entered via a sluice.

TESTING
Next to the storage of your components we can also test them on client's request.
We have various facilities for performing destructive and non-destructive testing of components.
The equipment includes XRF and SEM machines as well as baking facilities and fume cabinets.

TESTS MAY INCLUDE:
- Inspection to detect degradation over time
- Measurements to detect ingression
- Measurements to detect intermetallic growth
- Inspection to detect evidence of counterfeiting

SOFTWARE

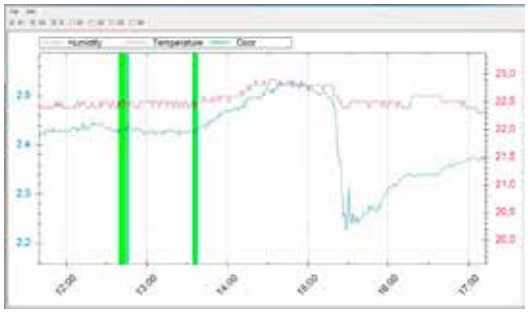
USER FRIENDLY DOCUMENTATION

TOTECH VIEWER

Standard cabinet monitoring with integrated logger (standard for SD+, MSD, HSD, XSDB, XSD, XSDV)

FUNCTIONS:
- Transfer of sensor, alarm and machine data from integrated storage through ethernet to PC
- User-friendly display of all relevant data
- Data processing in MS Excel

BENEFITS:
- Seamless documentation
- Excellent process safety

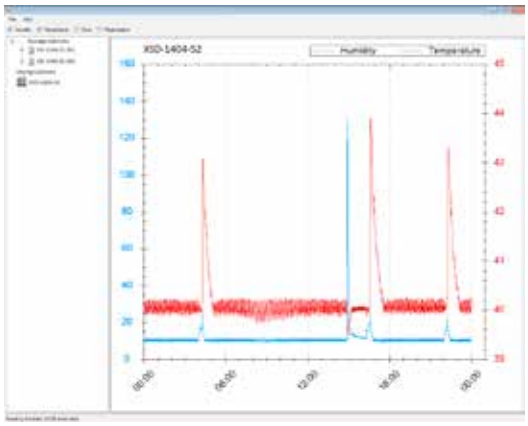


TOTECH MONITOR

Real-time cabinet monitoring with alarm function (optional)

FUNCTIONS:
- Online monitoring of humidity and temperature
- Management of data on multiple drying cabinets
- Measurements displayed on PC in table or chart format
- Automatic device identification
- Real-time alarm messages via e-mail

BENEFITS:
- Seamless documentation
- Excellent process safety
- Tamper-proof
- Fast response thanks to real-time monitoring



MSL 2.0

Reliable cabinet and component monitoring (optional)

CABINET MONITORING:
- Online monitoring of humidity and temperature
- Management of data of multiple drying cabinets
- Measurements displayed on PC in table or chart format
- Automatic device identification

COMPONENT MONITORING:
- Recording of all loading and unloading processes
- Dynamic calculation of remaining floor life time
- Documentation of drying process
- Lockout function upon expiry of floor life time

COMPONENT LOGISTICS:
- Continuous localisation of all components
- Traceability of all stock movements
- Information and evaluation about unused material

All data from all cabinets available at a glance

Dynamic calculation of remaining floor life time

Stock reports available at a push of a button

DRY TOWER

VOLUME & PROCESS OPTIMIZED COMPONENT STORAGE

BENEFITS:

REDUCED PERSONNEL TIME

VOLUME OPTIMISED STORAGE

SHORT SETUP TIME

HIGH DEGREE OF AUTOMATION

PERFECT DOCUMENTATION

DRAWER CABINETS

Our Dry Towers consist of up to four cabinets equipped with the maximum number of drawers. A chaotic placing strategy guarantees volume optimised storage.

BENEFITS

- Stores up to 43,000 reels per m^2
- Optimised utilisation of height, depth and width
- Fast access to all components
- Volume optimised storage
- Extendable by combining any number of storage modules

5-AXIS GRIPPER SYSTEM

The automated gripper system moving along 5 axes uses vacuum to transport component reels and trays safely and quickly. The gripper system can pick up loads of up to 3 kg.

BENEFITS

- Short access times
- Safe and efficient component transport
- Suitable for reels, trays and closed packagings

CONVEYOR TECHNOLOGY

The Dry Tower can be equipped with custom-engineered conveyor technology for batch processing of reels and boxes, catering for decentralised loading/unloading as well as line supply. Our system allows for maximum flexibility in your component logistics, as each batch is automatically transferred by roller and belt conveyors, lifts or autonomous transport systems to the best available position.

BENEFITS

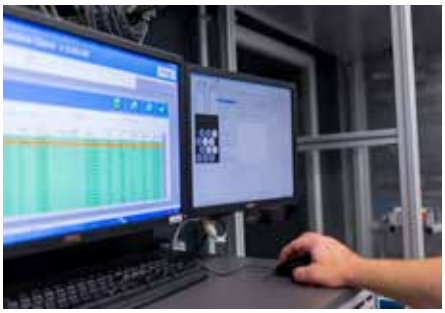
- Minimum personnel time
- Just-in-time line processing
- Decoupling of loading and retrieval processes

CLIMATE CONTROL

Our U-7000 series drying unit guarantees controlled humidity values <5% RH. When components sensitive to moisture are brought into the unit, the processing time is automatically stopped, reducing the risk of damage from oxidation. Using a 40°C heater, MSL components can be dried gently at the right temperature.

BENEFITS

- Permanent re-drying of components according to JEDEC standard
- Fast re-drying thanks to minimum relative air humidity
- Optional heating (up to 40°C) accelerates drying process



SOFTWARE

The standard interface allows for the integration of the Dry Tower into your existing MES system. Important storage data and parameters such as humidity, temperature and operator intervention are documented for subsequent evaluation. Our integrated commissioning function allows for efficient retrieval in the desired sequence and with regard to FIFO.

BENEFITS

- Reliable monitoring and documentation of moisture sensitivity levels as well as drying, stopping and processing times according to JEDEC standard
- Automatic commissioning function
- Standard interface for integration into existing systems
- Seamless logging along entire logistics chain
- Unrivalled versatility thanks to freely configurable storage strategies

WE ASSIST YOU ALL THE WAY – FROM PLANNING TO IMPLEMENTATION.

SDV SERIES
PERFECT PACKAGING

ESD safe packaging for long-term storage

SDV 46 FEATURES:
- Deep-drawn stainless steel vacuum chamber
- Antistatic acrylic glass cover
- Double seam welding
- High-pressure sealing systems
- Inserts for level adjustment
- Z-3000 sensor control
- 99 Program memory slots
- Service function
- Key lock, fast-stop and step vacuum functions
- Shipped with initial equipment
- Quality Busch vacuum pump
- Cordless sealing systems

OPTIONS:
- Nitrogen gas unit
- Additional sealing systems
- Trolley frame with bag tray
- Etc.

SDV SERIES

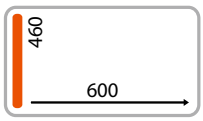
Control Display Z3000 /
(Model Z-2000, Time Controlled)
Our sensor control has been equipped with a vacuum sensor, and allows for the accurate setting of important parameters. Humidity and oxygen content can be reduced in a controlled manner. 99 program memories facilitate your packaging result's reproducibility and ensure easy handling and operation.

ESD Safe
Our machines have been equipped with acrylic covers. All surfaces are electrically conductive. Critical surfaces have been coated with dissipative plastics, and feature a bleeder resistance of 1x106 Ohm, compliant with the ESD standard.

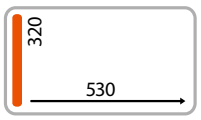
Nitrogen
Optionally, a nitrogen unit may be installed to facilitate the packaging of materials, which are vulnerable to oxidation or of pressure-sensitive nature. The additional reduction of oxygen content and diffusion rate are ideal for long-term storage.

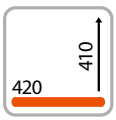
IPC Conform
The construction & control system are based on the IPC regulation.

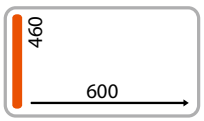
	SDV 46
Int. dimensions	650 x 210 x 475 mm
Seal length	450 mm
Vacuum pump	21m^3/h
Weight	105 kg
Digital control	Z-3000 (sensor-controlled)



	SDV 26	SDV 36 basic	SDV 36	SDV 46 basic	
Int. dimensions	580 x 125 x 350 mm	450 x 210 x 460 mm	450 x 210 x 460 mm	650 x 210 x 475 mm	
Seal length	310 mm	410 mm	410 mm	450 mm	
Vacuum pump	10m^3/h	16m^3/h	16m^3/h	16m^3/h	
Weight	60 kg	69 kg	70 kg	102 kg	
Digital control	Z-2000 (timer-controlled)	Z-2000 (timer-controlled)	Z-3000 (sensor-controlled)	Z-2000 (timer controlled)	







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MORE THAN JUST DRY AIR

PRODUCT CATALOGUE