

# TTK 1500

# EN

**OPERATING MANUAL**  
DEHUMIDIFIER





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## Notes regarding the operating manual

### Symbols



#### **Hazardous electric current!**

Warns about hazards from electric current which can lead to injuries or even death.



#### **Danger!**

Warns of a hazard which can lead to personal injury.



#### **Caution!**

Warns of a hazard which can lead to damage to property.

The current version of the operating manual can be found at:  
[www.trotec.de](http://www.trotec.de).

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**Information about the device**

**Description of the device**

This device uses the principle of condensation to automatically dehumidify rooms. To do so, the device can be used in continuous operation.

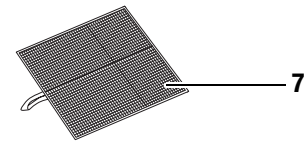
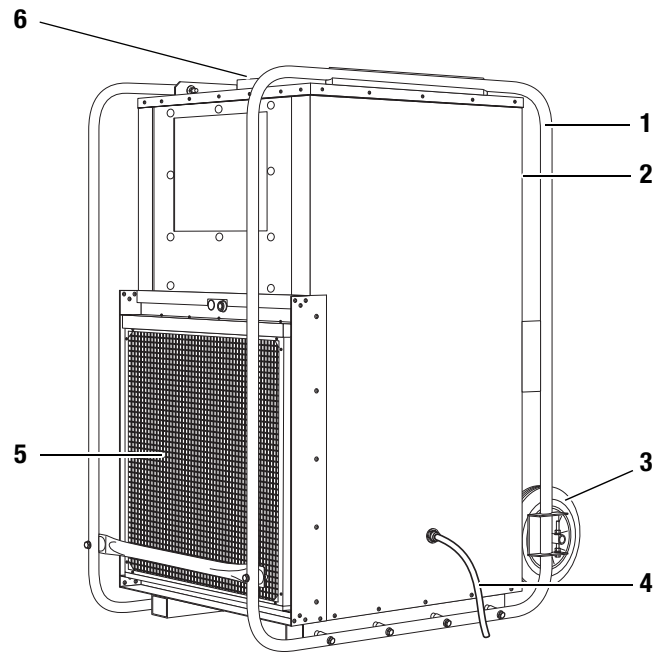
The fan sucks damp room air through the air inlet (5), the air filter (7), the evaporator and to the condenser located behind it. The air is cooled at the cold evaporator until it is below the dew point. Water vapour contained in the room air precipitates on the evaporator fins as either condensation or frost. The dehumidified, cooled air is warmed again and blown out from the air outlet (6). The drier air which is prepared in this way mixes with the air in the room. The humidity in the room where the device is positioned is reduced as air constantly circulates through the device. Depending on the air temperature and the relative humidity, the condensed water either drops continuously or only during the defrost phase into the condensation tray. The condensation is fed through a pressure-resistant pipe connection and out of the device at a preinstalled condensation drain hose (4).

The condensed water can be diverted by retrofitting a condensation pump.

For easy operation, the device is fitted with a control panel (2) and for easy transport, it is fitted with a bar handle (1) and wheels (3).

The device can reduce the relative humidity of a room by up to approx. 35 %. Because of the heat radiation which is tied up in operation, the room temperature can rise by approx. 1 – 3 °C.

**Device depiction and operating elements**



No.	Operating element
1	bar handle
2	control panel
3	wheels
4	condensation drain hose
5	air inlet
6	air outlet
7	air filter

**Scope of supply (standard)**

- TTK 1500
- air filter
- condensation drain hose
- operating manual

**Optional accessories**

- humidistat
- condensation pump
- energy cost gauge

## Technical data

Parameters	Values
Model	TTK 1500
Dehumidifying capacity, max.	400 l / 24 h
Dehumidifying capacity (20 °C / 60 % relative humidity)	100 l / 24 h
Suitable for room dimensions up to: construction drying or clearing water damages maintaining dryness	1700 m <sup>3</sup> 3400 m <sup>3</sup>
Operating temperature	0-40 °C
Working range for relative humidity	35-100 %
Volume of airflow, max.	2200 m <sup>3</sup> /h
Electric connection	400 V / 50 Hz / 6.75 A
Power consumption, max.	2.7 kW
Power consumption, average	1.7 kW
Fuse (home)	10 A
Compressor	Reciprocating
Refrigerant	R407c
Amount of refrigerant	2.5 kg
Weight	141 kg
Dimensions (HxDxW)	660 x 660 x 1313 mm
Minimum distance from walls of other objects	A: Above: 50 cm B: Behind: 50 cm C: Side: 50 cm D: Front: 50 cm
Sound pressure level LpA (3 m; complies with DIN 45635-01-KL3)	58 dB(A)

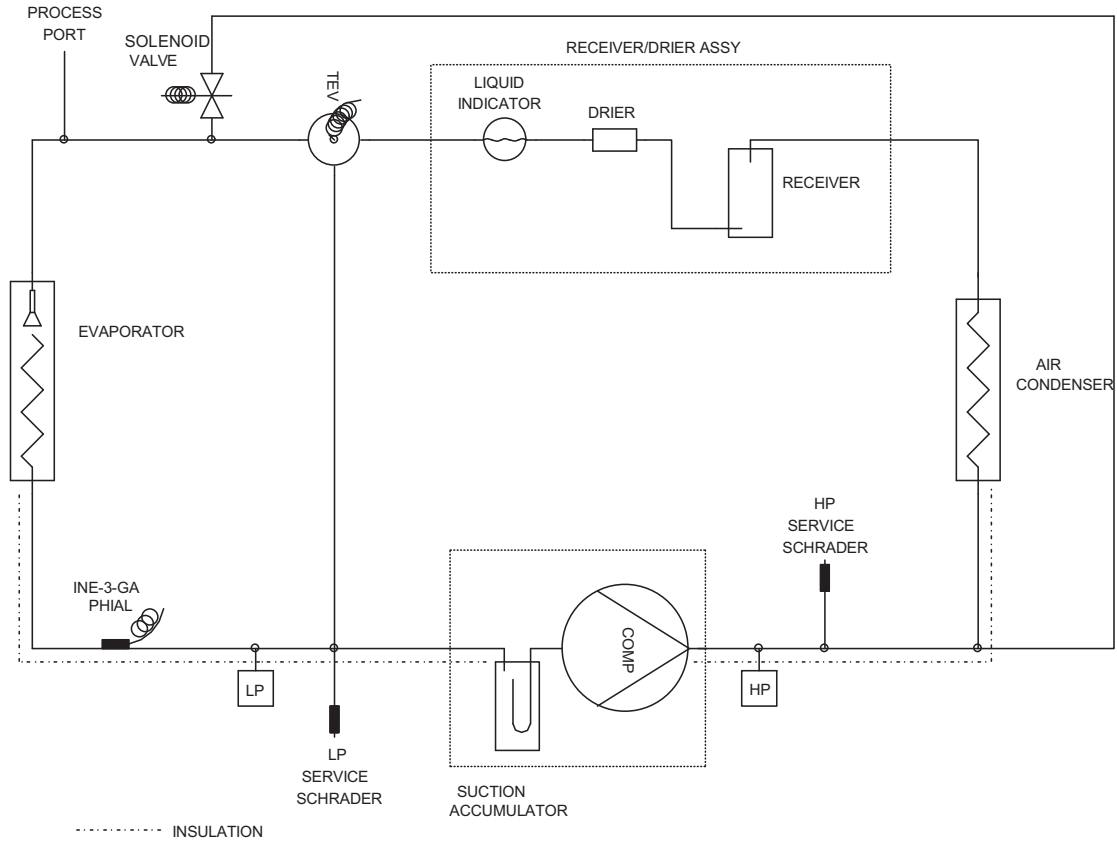
## Power consumption

The device's power consumption depends on the current room temperature and relative humidity.

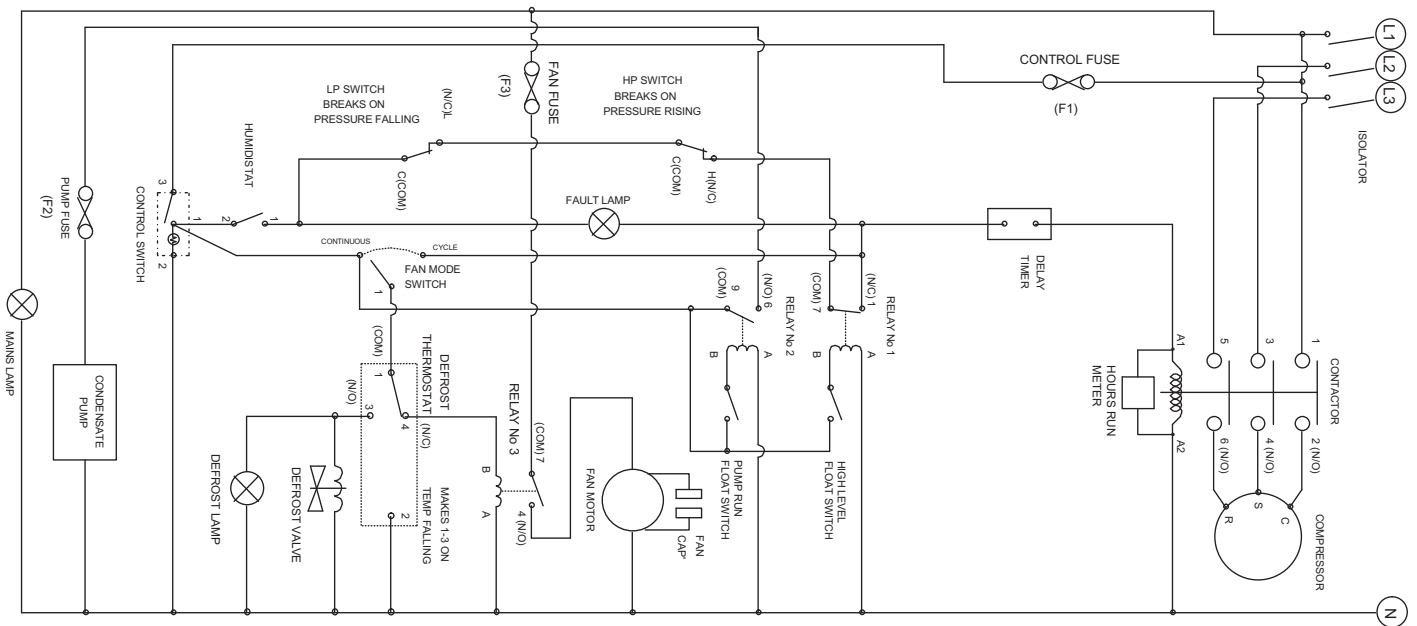
Multiply the operating hours (see operating hours counter (12)) by a consumption value of one kilowatt per hour to determine the approximate power consumption.

To determine the precise power consumption, a separate energy cost gauge can be set between the construction dryer and the power source. Contact Trotec customer service if you want this alternative version.

**Cooling circuit diagram**



**Circuit diagram**



## Safety

**Read this manual carefully before starting or using the device. Store the manual near the device or its site of use!**

- Do not use the device in potentially explosive rooms.
- Do not use the device in atmospheres containing oil, sulphur, chlorine, acid or salt.
- Do not operate the device in rooms which are pressurised with acetone, undiluted acids or solvents.
- Set the device in an upright and stable position.
- Do not expose the device to directly squirting water during operation.
- Ensure that the air inlet and outlet are not obstructed.
- Ensure that the side of the device where the air inlet is found is kept free of dirt and loose objects.
- Never insert objects or limbs into the device.
- Do not cover or transport the device during operation.
- Do not sit on the device.
- Ensure that all electric cables outside of the device are protected from damage (e.g. from animals).
- Only use extensions to the electric cable which are appropriate to the device power consumption, the length of its cable and its use. Avoid electrical overload.
- Only transport the device in an upright position with an emptied condensation pump and tray.
- Dispose of the collected condensation. Do not drink it. There is a risk of infection!

### Intended use

Only use the device TTK 1500 as a mobile industrial dryer for drying and dehumidifying room air, while adhering to and following the technical data.

### Intended use encapsulates:

- drying and dehumidifying:
  - production plants, underground rooms
  - store rooms, archives, laboratories
  - rooms and areas after water damages from burst pipes or flooding
- maintaining the dryness of:
  - instruments, devices and files
  - electric control devices, boiler plants, turbines and pipe systems in power plants
  - moisture-sensitive loads etc.

### Improper use

Do not place the device on flooded ground. Do not use the device outdoors. Do not lay any objects, e.g. wet clothing, on the device for drying. Any changes, modifications or alterations to the device which have not been authorised by Trotec are forbidden.

### Personnel qualifications

People who use this device must:

- be aware of the dangers that occur when working with electric devices in damp areas.
- take measures to protect themselves from direct contact with live parts.
- have read and understood the operating manual, especially the "Safety" chapter.

**Maintenance tasks at the electrical equipment or the air-conditioning technology must only be carried out by specialist companies for cooling and air-conditioning or by Trotec.**

### Residual risks



#### Hazardous electric current!

Work on the electrical components must only be carried out by an authorised specialist company!



#### Hazardous electric current!

Before any work on the device, remove the mains plug from the mains socket!



#### Caution!

To avoid damages to the device, never operate the device without an air filter inserted!

**Danger!**

Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!

**Danger!**

A toppling device can cause you injuries! Only slightly tilt the device and move it carefully. If necessary, ask another person to help. For longer distances, transport the device with a fork lift or elevating truck. Never stand below the device when suspended in the air.

**Storage**

When out of use, store the device as follows:

- dry,
- with a roof overhead,
- in an upright position where it is protected from dust and direct sunlight,
- with a plastic cover to protect it from invasive dust, if necessary.
- The storage temperature is the same as the range given for the operating temperature in the chapter "Technical data".

**Behaviour in the event of an emergency**

1. Disconnect the device from the mains power in an emergency.
2. Do not reconnect a defective device to the mains power.

**Transport**

To make the device easier to transport, it is fitted with wheels and side bar handles. If necessary, transport the device with the help of another person. To lift the device, use a fork lift or an elevating truck.

**Before** transporting the device, proceed as follows:

1. Switch off the device at the mains switch (see chapter "Operating elements").
2. Remove the mains plug from the mains socket. Do not use the power cable to drag the device!
3. Empty the condensation drain hose or the condensation pump (optional). Check for dripping condensation.
4. Hold the bar handles in both hands and carefully tilt the device.
5. Transport the device on its wheels.

**After** transporting the device, proceed as follows:

1. Set the device in an upright position after transport.
2. Ensure that the device sits flat on the floor. The wheels are then raised and the device cannot roll away.

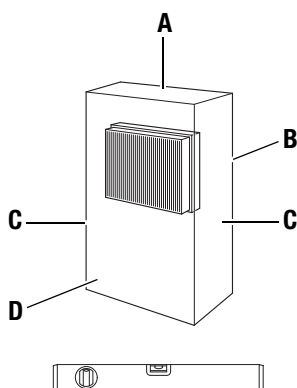


## Operation

- After being switched on, the device operates fully automatically.
- Avoid open doors and windows.

## Positioning

When positioning the device, observe the minimum distance from walls of other objects as described in chapter "Technical data".



- Set the device in a level and stable position.
- When positioning the device, keep a sufficient distance away from sources of heat.
- If possible, set the device in the middle of a room. If using multiple devices, ensure that the spaces between devices is equal.
- When positioning the device in wet areas, secure the device locally with an RCD (Residual Current protective Device) which complies with the appropriate regulations.
- Ensure that extension cords are completely unrolled.
- Ensure that power supply's voltage and current comply with the specifications on the device's nameplate.
- When using a generator, ensure that the generator supplies at least 4 kW of power (device starting current can exceed the nominal current by four or five times. Also note this fact when using several devices at one generator).

## Notes regarding the dehumidifying capacity

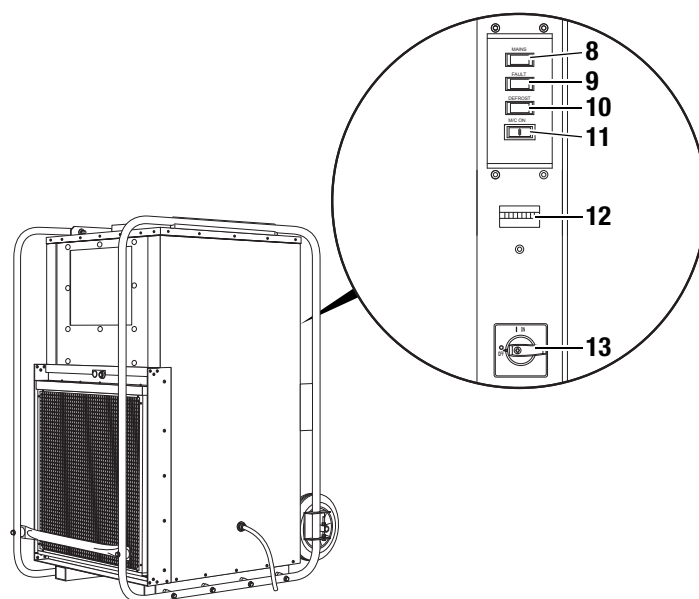
The dehumidifying capacity depends on:

- the spatial composition of the room
- the room temperature
- the relative humidity

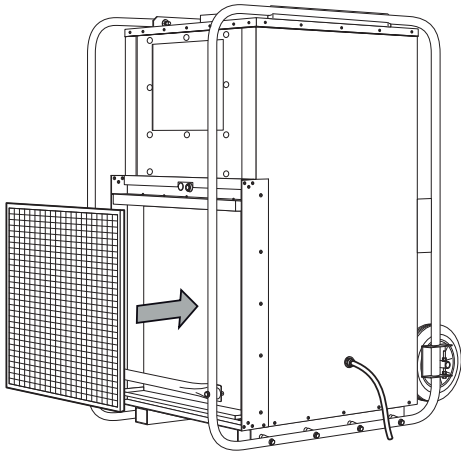
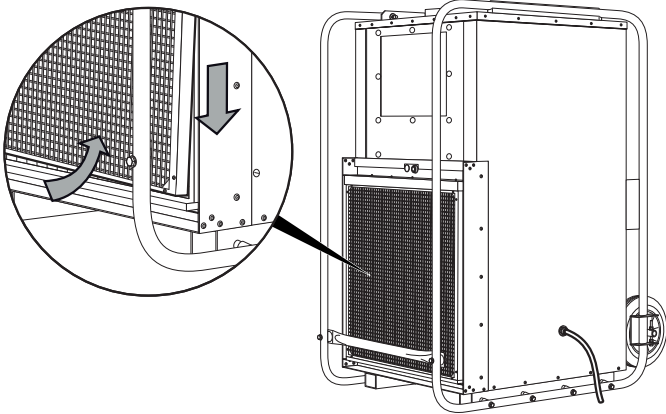
The higher the room temperature and relative humidity, the higher the dehumidifying capacity.

For using in living rooms, a relative humidity of approx. 50-60 % is sufficient. In store rooms and archives, the humidity should not exceed approx. 50 %.

## Operating elements

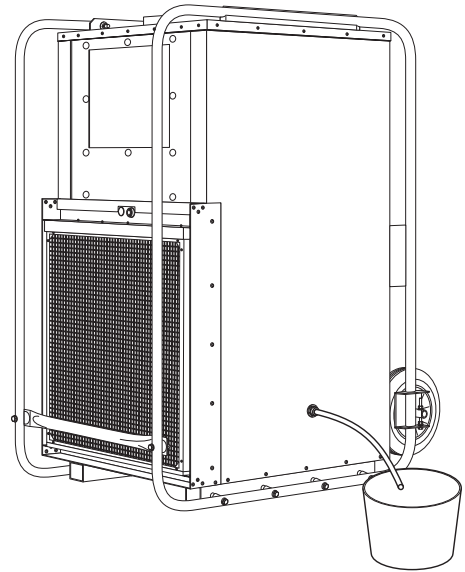


No.	Operating element
8	Operation indicator light: Lights when the device is switched on at the mains switch.
9	"Fault" indicator light: Lights when there is a fault.
10	"Automatic defrost" indicator light: Lights when the automatic defrost is active.
11	Control on/off
12	Operating hours counter
13	Mains switch: "ON": Device is switched on. "OFF": Device is switched off.

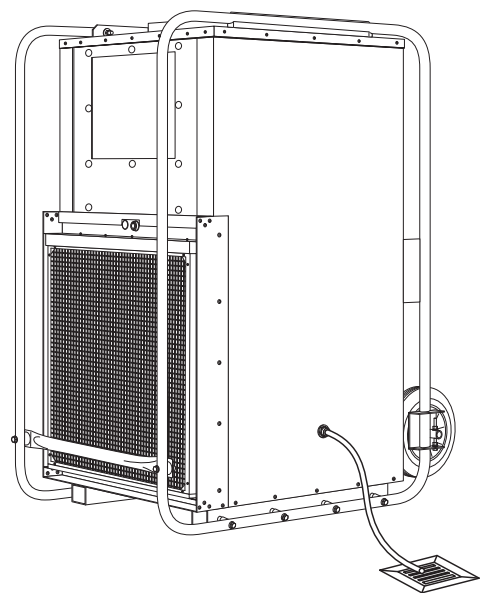
**Start procedure****Insert air filter****A.****B.****Positioning the condensation drain hose****Note:**

The condensation drain hose is already installed when the device is delivered.

1. Ensure that the condensation drain hose is properly connected to the device and is free of damage.
2. Depending on use, position the end of the condensation drain hose as follows:
  - Position a sufficiently large container (at least 90 litres) beside the device and insert the hose end. Check the fill level of the container regularly.

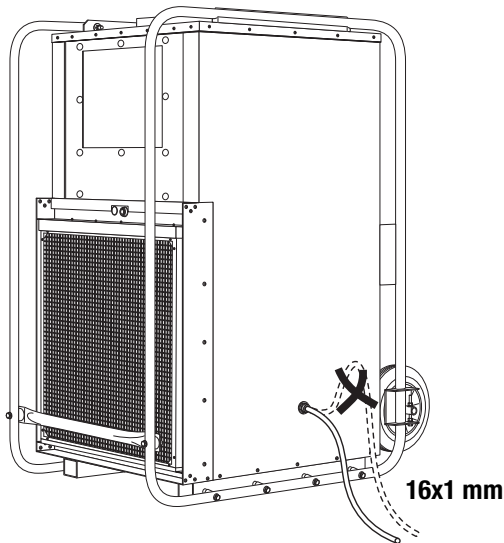


- Position the end of the condensation drain hose above a water drain. For larger distances, a longer hose of the same type can also be used.



- The device can also be operated with a condensation pump. Contact Trotec customer service if you want this alternative version.

3. Ensure that the condensation drain hose always descends.



### Switching on the device

1. Ensure that the condensation drain hose (4) has been laid and connected properly. Do not create tripping hazards.
2. Ensure that the condensation drain hose (4) is not bent or jammed and that there are no objects on the condensation drain hose (4).
3. Ensure that the condensation can run off properly.
4. Insert the mains plug into a properly secured mains power socket. Do not create tripping hazards.
5. Empty any condensation from the device by pressing the button for draining residual water from the condensation pump (optional).
6. Switch on the device at the mains switch (13).

### "Continuous" operation mode

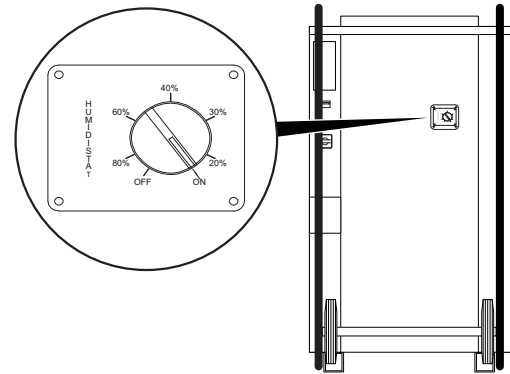
In continuous operation mode, the device dehumidifies the air constantly, regardless of the humidity in the air.

### "Humidistat" operation mode (optional)

The device can also be operated with a humidistat.

The humidistat switches the device on or off depending on the humidity.

If you choose to operate the device with an optional humidistat, set the desired humidity at the humidistat (see operating manual of the optional humidistat).



### Automatic defrost

Depending on the air temperature and the relative humidity, the evaporator fins may become covered in frost. The hot gas automatic defrost which is installed in the device switches back on as needed. Dehumidify mode is briefly interrupted during defrosting.

### Shut down procedure

1. Switch off the device at the mains switch (13).
2. Empty any condensation from the device by pressing the button for draining residual water from the condensation pump (optional).
3. Do not touch the mains plug with wet or damp hands.
4. Remove the mains plug from the mains socket.
5. Remove the condensation drain hose (4) and any residual fluid from it.
6. Clean the device, and especially the air filter, according to chapter "Maintenance".
7. Store the device according to chapter "Storage".

## Errors and faults

The accurate functionality of the device was tested during production a number of times. However, if functionality faults do occur, then check the device according to the following list.



### Caution!

To prevent damages to the device and to prevent the fuse or motor protection switch from tripping, ensure the device is switched off and wait at least 5 minutes before switching the device back on.

### The device does not start:

- Check the mains power (400 V/3~/50 Hz).
- Check the mains plug for damages.
- Check whether the mains switch (13) is in the "ON" position.
- Check the fuse (home).
- If you operate the device with a humidistat, check the desired humidity. The humidity in the room must be above the selected range. Reduce that the selected humidity.
- Have the electrics checked by a specialist company for cooling and air-conditioning or by Trotec.

### The device runs but forms no condensation:

- Check the condensation drain hose is positioned correctly.
- Check that the condensation pump functions properly. Check for abnormal vibrations and sounds. Remove external dirt.
- Check the room temperature. Check the device's permissible working range complies with the technical data.
- Ensure that the relative humidity complies with the technical data.
- If you operate the device with a humidistat, check the desired humidity. The humidity in the room must be above the selected range. Reduce that the selected humidity.
- Check the air filter is not dirty. If necessary, clean or replace the air filter.

### The device is loud or vibrates; condensation leaks:

- Check whether the device is standing upright and on an even surface.

### The device gets very warm, is loud or is losing performance:

- Check the air inlets and air filter are not dirty. Remove external dirt.
- Check the inside of the device for dirt (see chapter "Maintenance"). Clean the inside of the device as described in the chapter "Cleaning the inside with compressed air".

### Does your device still not operate correctly after these checks?

Bring the device to a specialist company for cooling and air-conditioning or to Trotec for repairs.

## Maintenance

### Maintenance intervals

Maintenance and care interval	before every start	when necessary	at least every 2 weeks	at least every 4 weeks	at least every 6 months	at least annually
empty the condensation pump, condensation tray and/or construction dryer		X				
check air inlets and outlets for dirt and foreign objects and clean if necessary	X	X		X		
visually check whether the inside of the device is dirty		X		X		
clean the inside with compressed air		X				X
check air inlet grid and air filter for dirt and foreign objects and clean or replace if necessary	X		X			
replace air filter					X	
check for damages	X					
check attachment screws		X				X
carry out a test run						X

### Maintenance and care log

Device type: .....

Device number: .....

Maintenance and care interval	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
check air inlets and outlets for dirt and foreign objects and clean if necessary																
clean housing																
visually check whether the inside of the device is dirty																
clean the inside with compressed air																
check air inlet grid and air filter for dirt and foreign objects and clean or replace if necessary																
replace air filter																
check for damages																
check attachment screws																
carry out a test run																
Remarks:																

1. Date: Signature:	2. Date: Signature:	3. Date: Signature:	4. Date: Signature:
5. Date: Signature:	6. Date: Signature:	7. Date: Signature:	8. Date: Signature:
9. Date: Signature:	10. Date: Signature:	11. Date: Signature:	12. Date: Signature:
13. Date: Signature:	14. Date: Signature:	15. Date: Signature:	16. Date: Signature:

**Activities for before the start of maintenance**

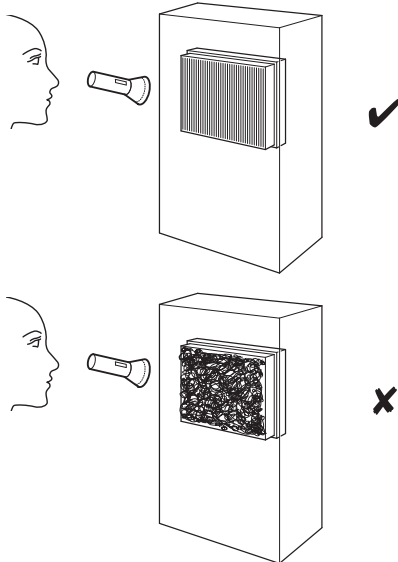
1. Do not touch the mains plug with wet or damp hands.
2. Before any work, detach the mains plug!



**Maintenance tasks at the electrical equipment or the air-conditioning technology must only be carried out by specialist companies for cooling and air-conditioning or by Trotec.**

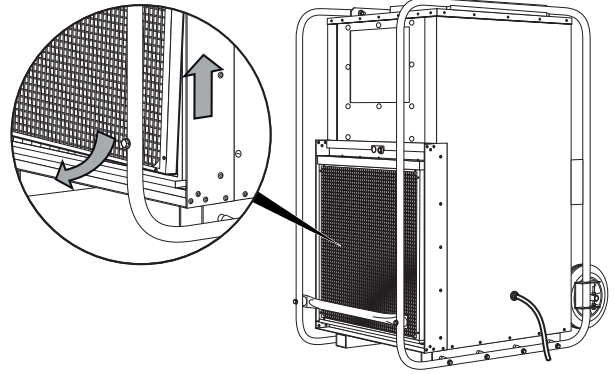
**Visual check for dirt in the inside of the device**

1. Remove the air filter (see chapter "Cleaning the air inlets and the air filter").
2. Shine a torch through the opening of the device.
3. Check the inside of the device for dirt.
4. If you find dirt, use a high pressure cleaner to clean the device according to "Cleaning the air inlets and the air filter".
5. Put the air filter back in.

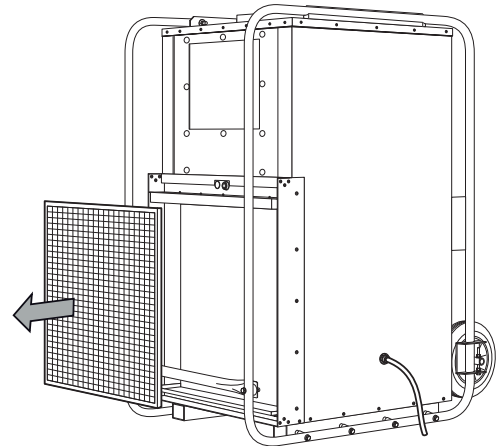


**Cleaning the air inlets and the air filter**

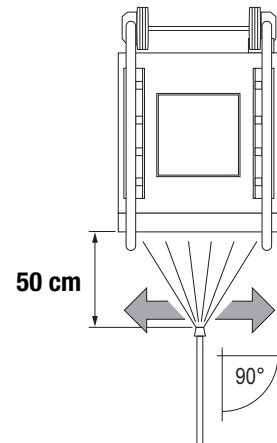
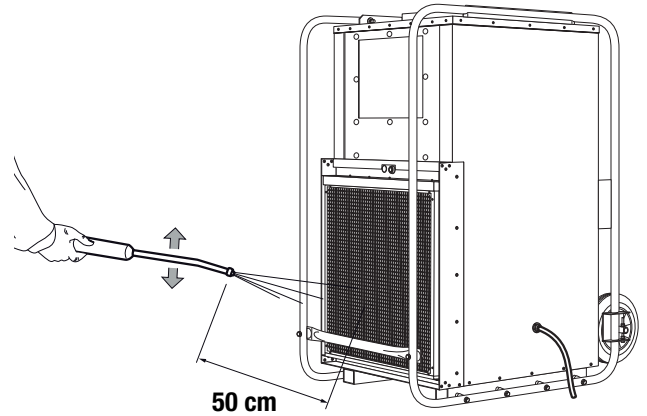
**A.**



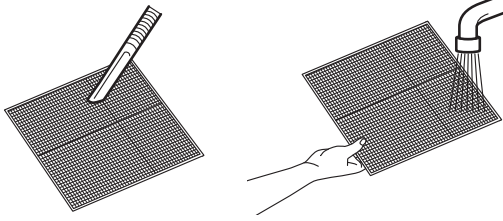
**B.**



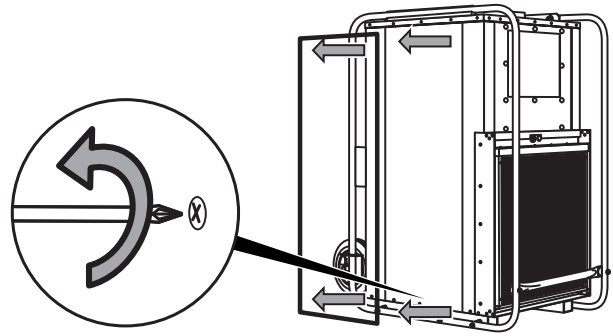
**C.**



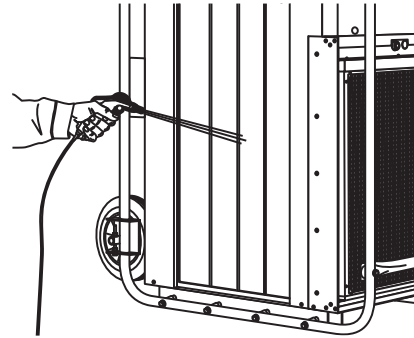
D.



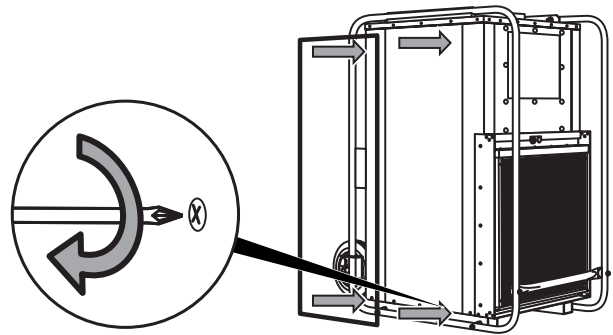
C.



D.



E.



**Caution!**

When cleaning the inside, take care not to bend the fins of the condenser and evaporator. Do not damage the insulation.

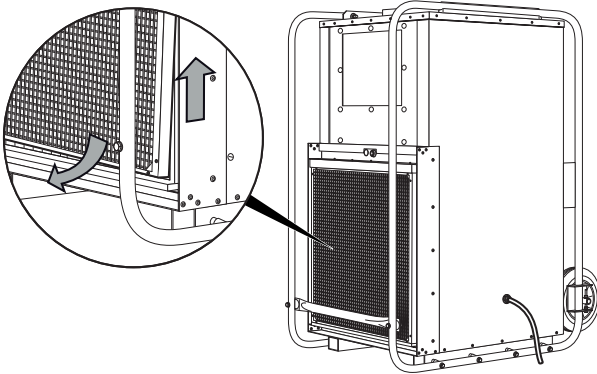


**Caution!**

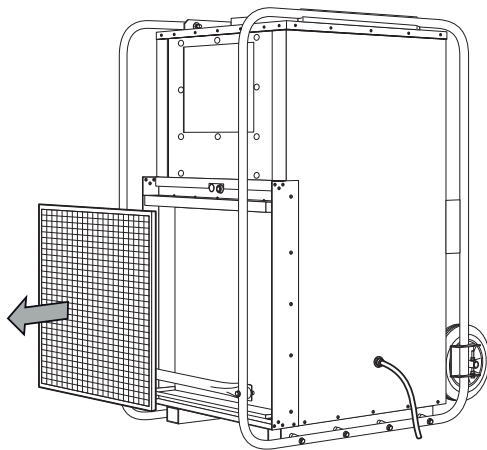
After you have cleaned the device with a high pressure cleaner, check the air filter, which you have already removed, for damages. The corners and edges must not be rounded or misshaped. Before reinserting the air filter, ensure that it is dry and is not damaged! Read the chapter "Maintenance intervals" and replace the air filter punctually!

**Cleaning the inside with compressed air**

A.



B.

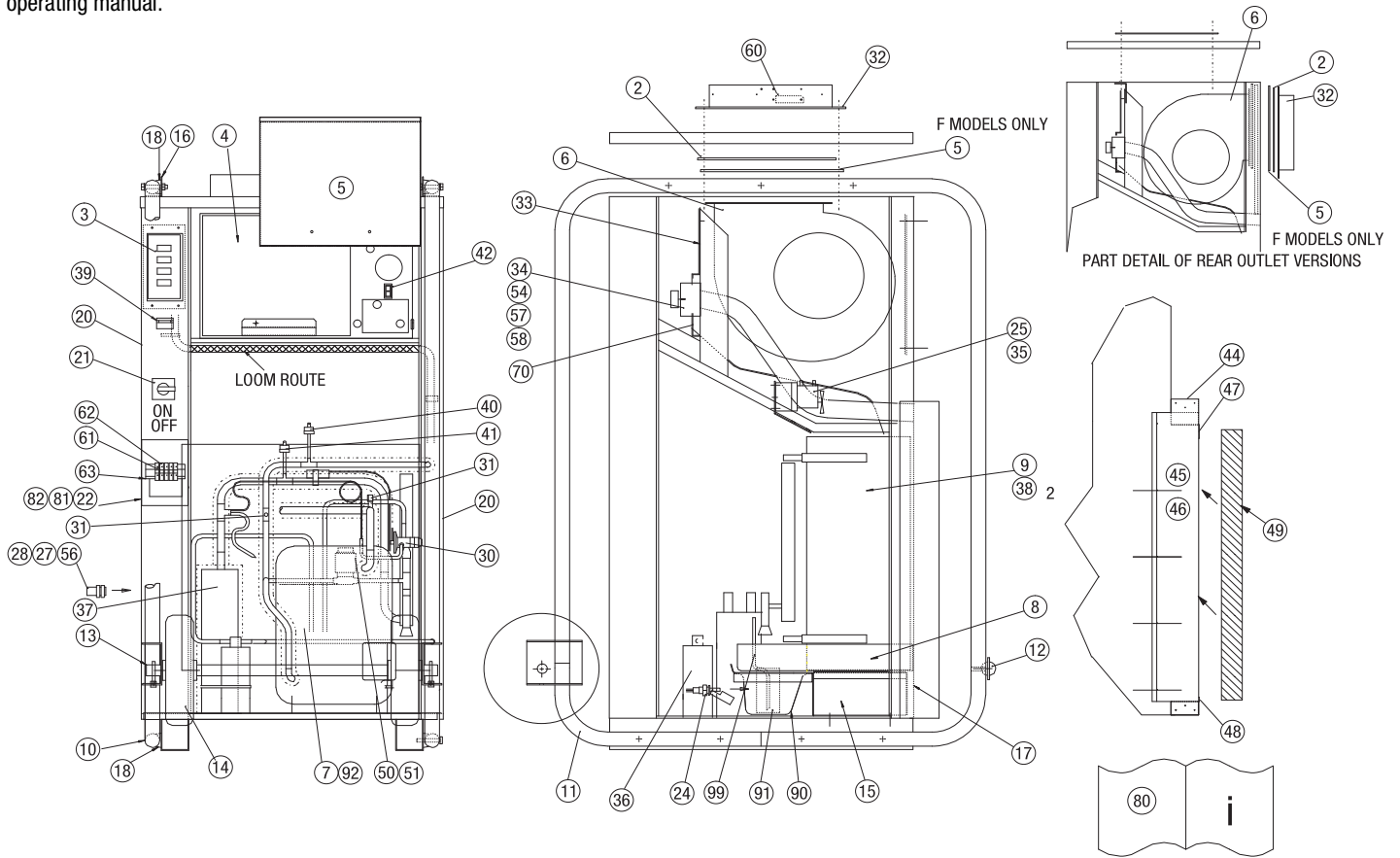


**Overview and list of spare parts**

**Main components**

**Note!**

The position numbers of the spare parts differ from those describing the positions of other parts mentioned in this operating manual.



No.	Item number	Spare part	No.	Item number	Spare part
1	SD062150	electric box lid	30	SD086951	TEV INE-3-GA
2	SD071750	outlet grille	31	SP066350	Schrader valve
3	SA205501	console assembly	32	SD071650	duct flange
4	SA582501	electric box assembly	33	SD086350	support bkt
6	7150001210	fan assembly (drilled)	34	SD080650	component box ABS drilled
7	7161000283	compressor	35	SD300550	pump bracket
8	7310000886	drip tray	36	SD149650	receiver/drier
9	SD141553	evaporator	37	7140000899	operating hours counter (panel mount)
10	SD289750	frame (left side)	38	SD097250	evaporator spacer
11	SD289751	frame (right side)	40	SD266450	HP switch ACB-DB88 400 psi
12	SD291850	crash bar	41	SD266550	LP switch LCB-DA15 7 psi
13	SD289850	axle	42	SD188950	rocker switch 1 pole c/o
14	7600000080	wheel	44	SD085150	duct flange top and bottom
15	SD288750	support bracket	45	SD085250	duct flange side
16	SD290150	bracket	46	SD085251	duct flange side
17	SD288850	blanking panel	47	SD175750	filter bracket
18	SD289550	saddle washer	48	SD175850	filter bracket
19	SD520851	spacer mounting tube 42 mm long	49	7710000911	filter washable
20	SD011450	side panel	50	SD166250	solenoid valve 3/8
21	SD232150	isolator switch	51	SD166550	solenoid coil 230 V, 50 Hz
22	7242000887	mains in box	54	SP152150	M20 plastic gland back nut
24	7130000912	float switch (62-00-554)	56	7310000349	tube insert (62-00-094)
25	7170000191	peristaltic pump 11 litre per hr.	57	SD062350	humidistat
27	SD294650	bulkhead connector	58	SD041450	control knob
28	7310000348	locking collet	60	SD293050	damper plate

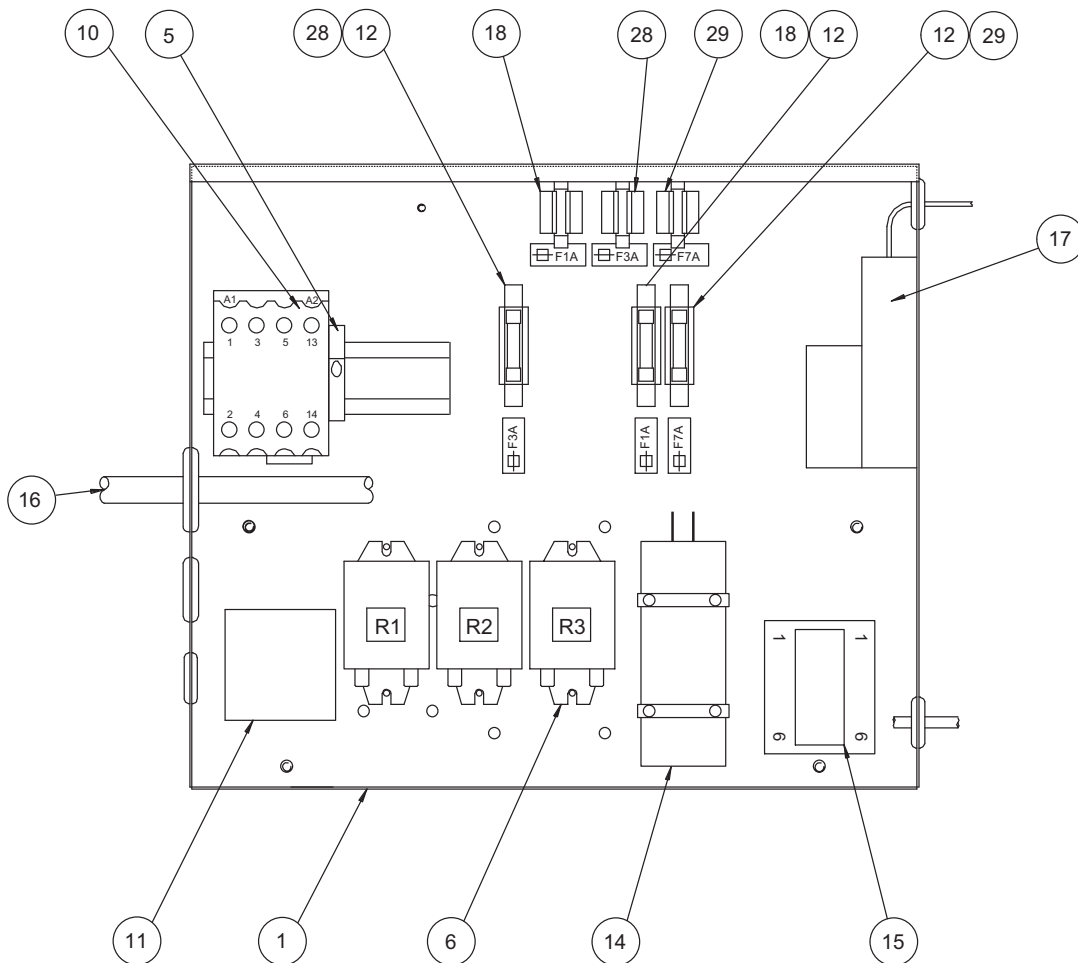


No.	Item number	Spare part	No.	Item number	Spare part
61	SD098950	terminal block earth EK4	82	SD188450	locknut M25
62	SD099050	terminal block SAK6N	90	SD304501	drip tray
63	SD120550	din rail	91	SD306050	water filter
70	SD117950	bracket	92	SP182554	refrigerant R407c
80	SD208052	user manual	99	SD295550	water suction
81	SD188550	M25 bush			

## Components – Electrical equipment

### Note!

The position numbers of the spare parts differ from those describing the positions of other parts mentioned in this operating manual.

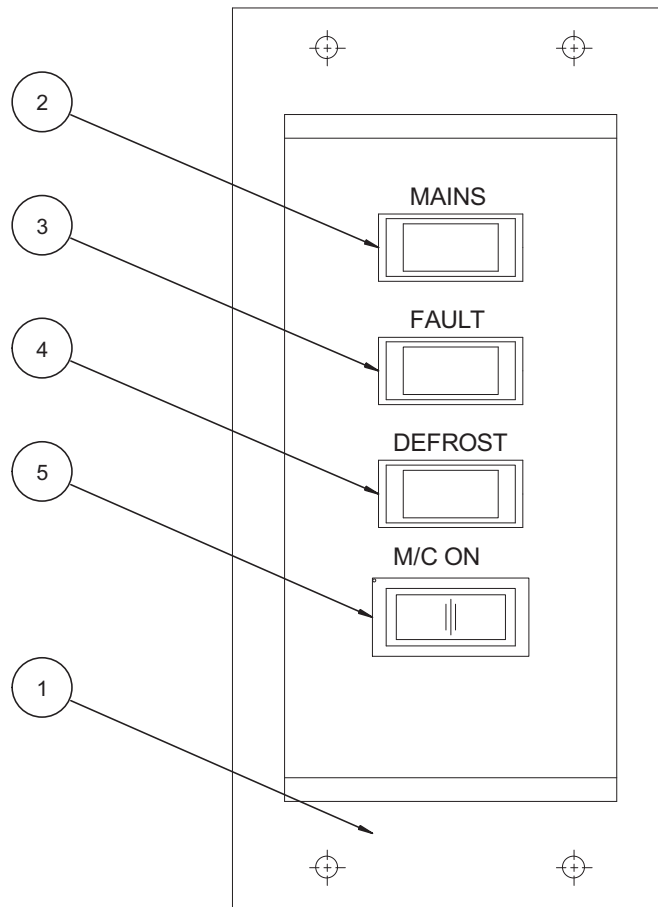


No.	Item number	Spare part
1	SD062001	electrical box steel plated
5	SD403950	end bracket EW35 (8.5)
6	7140000196	relay c/o 2 pole 16 A 230 V AC coil
10	7140000203	contactor 9 A 3+1 N/O aux
11	7140000164	delay timer 7 sec to 9 min
12	SD216550	fuse holder
14	SD271250	capacitor 8 $\mu$ F
15	SD072650	terminal block 6 way
16	SA582601	loom assembly
17	7140000928	defrost stat/timer
18	SD035353	fuse 1/4 x 1 1/4, 1 A
28	SD035350	fuse 3 A
29	SD035352	fuse 1/4 x 1 1/4, 7 A

**Control panel**

**Note!**

The position numbers of the spare parts differ from those describing the positions of other parts mentioned in this operating manual.



No.	Item number	Spare part
1	7310001153	console moulding
2	7141000891	pilot light red rectangular 250 V
3	7141000889	pilot light amber rectangular
4	7141000890	pilot light white rectangular
5	7130000892	rocker switch illuminated red

## Disposal



In the European Union, electronic equipment must not be treated as domestic waste, but must be disposed of professionally in accordance with Directive 2002/96/EC of the European Parliament and Council of 27th January 2003 concerning old electrical and electronic equipment. At the end of its life, please dispose of this instrument in a manner appropriate to the relevant legal requirements.

The device uses an environmentally friendly and ozone-neutral refrigerant (see chapter "Technical data"). Dispose of the refrigerant/oil mixture appropriately and according to the national regulations.

## Declaration of conformity

in accordance with the EC Low Voltage Directive 2006/95/EC and the EC Directive 2004/108/EC about electromagnetic compatibility.

Herewith, we declare that the dehumidifier TTK 1500 was developed, constructed and produced in compliance with the named EC directives.

Applied harmonised standards:

IEC 60335-1:2001/A2:2006

IEC 60335-2-40:2002/A1:2005

IEC 62233:2005

The  $\text{C} \text{E}$  marking is found on the device nameplate.

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Heinsberg, 30/10/2009



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