# TTK 655 S


# EN

**OPERATING MANUAL**
DEHUMIDIFIER

TROTEC
AT WORK.

TRT-BA-TTK655S-TC-001-EN

## Table of contents



## 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 property damage.

The current version of the operating manual can be found at:

**TTK 655 S**

http://download.trotec.com/?sku=1120000174&id=1

### Legal notice



Changes to construction in the interests of constant improvements to the product, as well as changes to the shape and colour are reserved.

The scope of delivery may vary from product images. This document was created with all due care. Trotec accepts no liability whatsoever for possible mistakes or omissions.



### Warranty and liability

The device complies with the fundamental health and safety requirements of the applicable EU regulations and was tested at the factory for perfect functionality multiple times.

However, if faults in the functionality occur and cannot be remedied with the measures in the chapter Errors and faults, please get in touch with your dealer or distributor.

When making a warranty claim, supply the device number (see the rear of the device).

When manufacturer's instructions or legal regulations have not been followed, or after unauthorised changes to the device are made, the manufacturer is not responsible for the resulting damages. Changes to the device or unauthorised replacement of individual parts can drastically impact the electrical safety of this product and leads to the forfeit of the warranty. Liability does not extend to damages to people or property caused by the device being used other than as described in the instructions in this operating manual. Subject to changes to technical design and model changes as part of constant development and product improvement without prior notice.

No liability is accepted for damages resulting from improper use. In such a case, any warranty claims be voided also.

## Safety

**Carefully read this manual before starting / using the device and keep it within reach.**

- Do not use the device in potentially explosive rooms.
- Do not use the device in aggressive atmosphere.
- Set the device up in an upright and stable position.
- 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 reach or put objects into the device.
- Do not cover or transport the device during operation.
- Do not use the device with wet or damp hands.
- Ensure that all electric cables outside of the device are protected from damage (e.g. from animals). Never use the device if the cable or power connection is damaged!
- Only use extensions to the connecting cable which are appropriate to the device power consumption, the length of its cable and its use. Completely unroll extension cables. Avoid electrical overload.
- Only transport the device in an upright position with an emptied condensation tank.
- Dispose of the collected condensate. Do not drink it. Health hazard!
- Unplug the device from the mains before starting with maintenance, service or repair work.

### Intended use

Only use the device TTK 655 S for drying and dehumidifying room air (e.g. after water damages from burst pipes or flooding), while adhering to and following the technical data.

Intended use comprises:

- drying and dehumidifying:
  - living rooms, bedrooms, bathrooms or basements
  - laundries, holiday homes, camper vans, boats
- maintaining the dryness of:
  - store rooms, archives, laboratories
  - bathrooms, wash rooms, changing rooms etc.

### Improper use

Do not place the device on flooded ground. Do not use the device outdoors. Do not place any objects, e.g. wet clothing, on the device for drying.

Any unauthorised changes, modifications or alterations to the device 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.
- have read and understood the operating manual, especially the Safety chapter.

### 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, do not 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!

### Behaviour in the event of an emergency

1. In an emergency, disconnect the device from the mains feed-in: Switch the device off and disconnect it from the mains.
2. Do not reconnect a defective device to the mains.

## Information about the device

### Description of the device

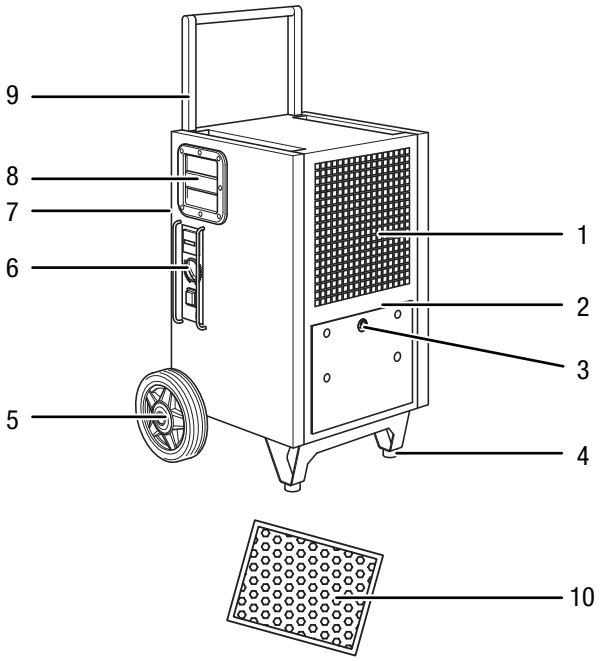
The device uses the principle of condensation to automatically dehumidify rooms. The fan sucks in humid room air through the air inlet (1), the air filter (10), the evaporator and the condenser located behind it. The air is cooled at the cold evaporator until it is below the dew point. Water vapour contained in the room air precipitates on the evaporator fins as either condensation or rime. The dehumidified, cooled air is rewarmed at the condenser and blown out at a temperature of approx. 5 °C above room temperature. The drier air thus conditioned 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. The condensation is fed from the device through the condensation drain hose connected to the hose connector (3) into an external container or drain.

The condensed water can also be diverted by means of a retrofitted condensate pump (see chapter Installing the condensate pump (optional)).

The device has a control panel (6) for operating and controlling the functions.

The device can reduce the relative humidity of a room to approx. 32 %. Because of the heat radiation which is tied up in operation, the room temperature can rise by approx. 1-4 °C.

### Device depiction




| No. | Designation |
|---|---|
| 1 | Air inlet |
| 2 | Connection for optional condensate pump |
| 3 | Hose connector for condensation drain hose |
| 4 | Feet |
| 5 | Wheels |
| 6 | Control panel |
| 7 | Air outlet |
| 8 | Carrying handle |
| 9 | Transport handle |
| 10 | Air filter |

## Transport and storage

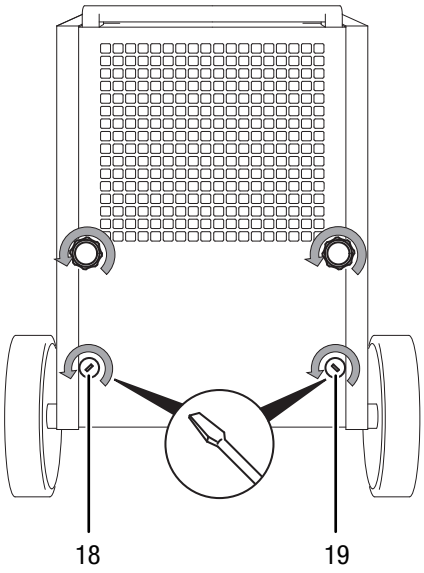
### Transport

To make the device easier to transport, it is fitted with wheels and a transport handle.

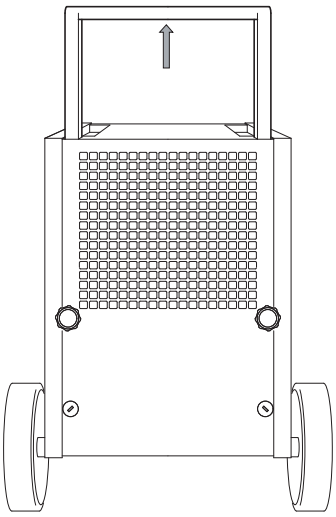
**Before** transporting the device, proceed as follows:

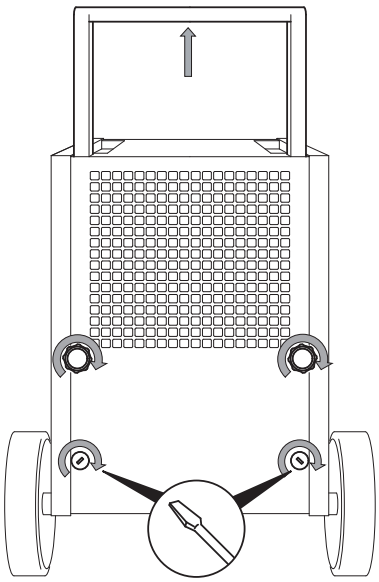
1. Switch off the device at the mains switch (see chapter Operating elements).
2. Remove the mains plug from the mains socket. Do not use the power cable to drag the device!
3. Empty the condensation tank or the condensation drain hose or the condensate pump (optional). Check for dripping condensation.
4. After unpacking the device, adjust the transport handle in transport position as follows:
   **Note!**
   After unpacking the device, remove the two lower screws (18, 19) and adjust the transport handle. Afterwards, reinsert the screws. This only needs to be carried out the very first time that the device is unpacked.

   ⇨ **Transport handle upon delivery**




⇨ **Transport handle in transport position**

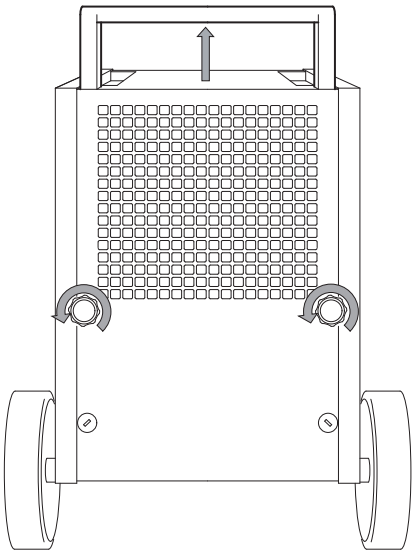


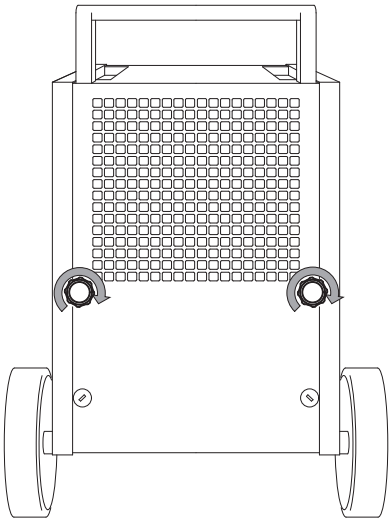


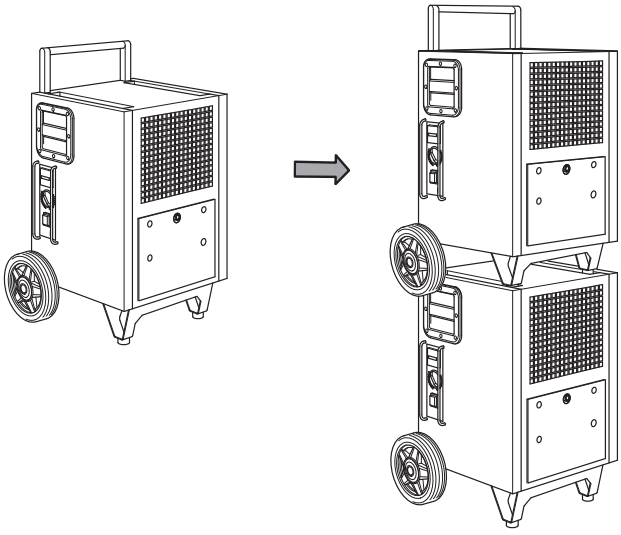
5. Hold the transport handle in both hands and tilt the device so that it can be rolled on its wheels.
6. Move the device to the site where you want to use it.

7. If necessary, stack several devices on top of each other as follows:

   ⇨ **Transport handle in stacking position**







**After** transporting the device, observe the following:

1. Set up the device in an upright position after transport.

## Storage

When the device is not being used, observe the following storage conditions:

- dry,
- under roof,
- in an upright position where it is protected from dust and direct sunlight,
- stacked on top of each other (max. 3 devices), if necessary,
- With a 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 technical data.

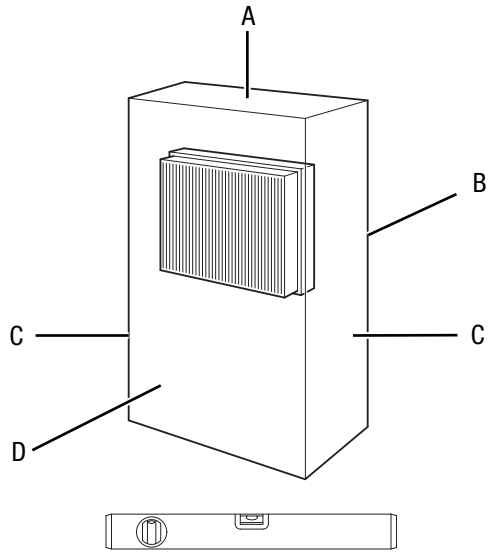
## Operation

- 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 or other objects as described in chapter Technical Data.

- Set the device up in a level and stable position.
- When positioning the device, keep a sufficient distance to heat sources.
- When positioning the device, particularly in wet areas, secure it locally with an RCD (residual current device) which complies with the respective regulations.




- Make sure that extension cables are completely unrolled.

### Notes regarding the dehumidification performance

The dehumidification performance depends on:

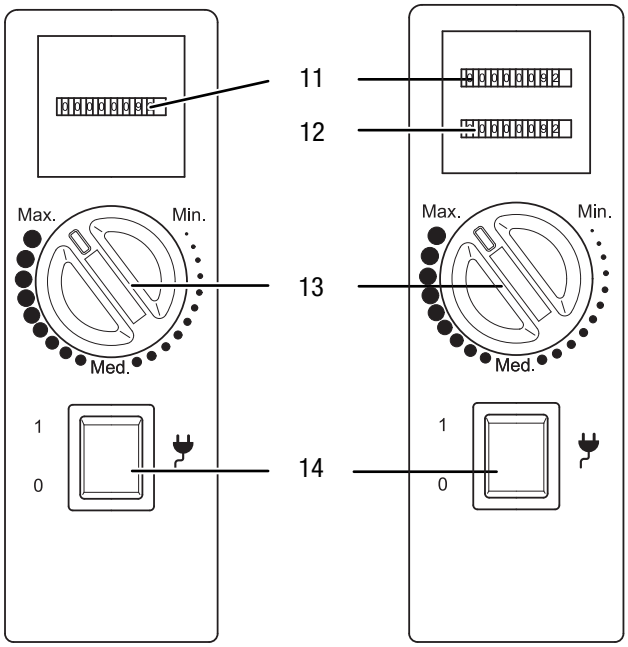
- the layout of the room
- the room temperature
- the relative humidity

The higher the room temperature and relative humidity, the greater the dehumidification performance.

For use in living rooms, a relative humidity of approx. 50 to 60 % is sufficient. In storage facilities and archives, the humidity should not exceed approx. 50 %.

### Operating elements

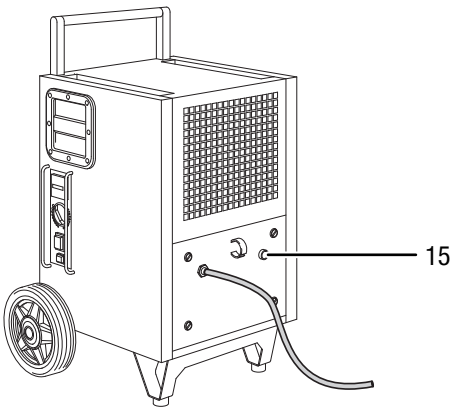
### Control panel




| No. | Designation |
|---|---|
| 11 | Operating hours counter |
| 12 | Kilowatt hours counter (optional) |
| 13 | Rotary switch |
| 14 | Mains switch;<br>Illuminated when the device is switched on. |

The device is optionally available with a control panel with two counters (see the image at the top right). Contact your Trotec customer service.

### Condensate pump (optional)




| No. | Designation |
|---|---|
| 15 | Key for draining residual water from the condensate pump |

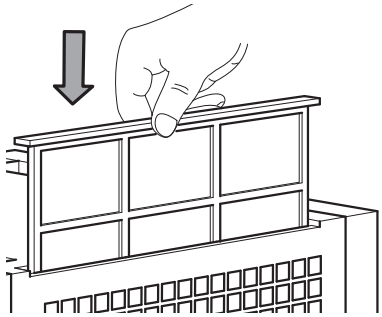
The device can optionally be operated with a condensate pump (see chapter Installing the condensate pump (optional)). Contact your Trotec customer service.

## Start-up

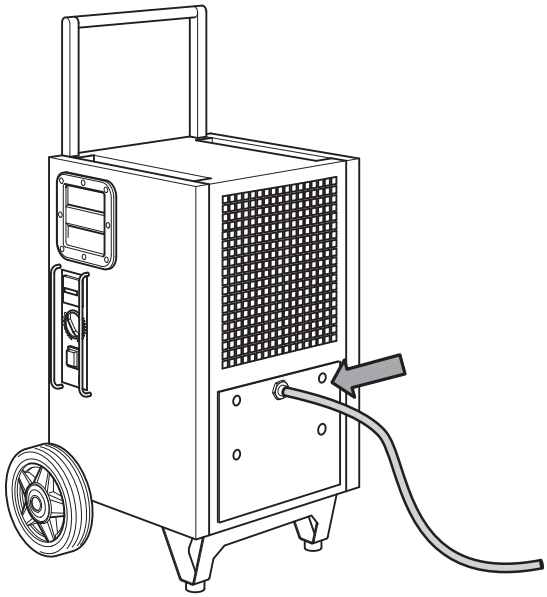
### Inserting the air filter

Make sure that the air filter is installed before switching the device on.

**A.**



### Connecting the condensation drain hose



### Switching on and starting up the device

1. Ensure that the condensation drain hose is properly connected to the device and is free of damage.
2. Position a sufficiently large container (at least 20 litres; we recommend a 60-litre mortar tub) beside the device and insert the hose end. Check the filling level of the container regularly.
3. Ensure that the condensation drain hose always descends.
4. Insert the mains plug into a properly secured mains socket.
5. Switch on the device at the mains switch (14).
6. Ensure that the mains switch (14) is illuminated.
7. Adjust the room humidity level with the rotary switch (13).

### Continuous operation mode

In continuous operation mode, the device dehumidifies the air constantly, regardless of the humidity. To start continuous operation mode, set the rotary switch (13) to Max.

### Automatic defrost

If the room temperature is below 11 °C, the evaporator will freeze during dehumidification. The device will then carry out an automatic defrost. The duration of the defrost process can vary.

- Do not switch off the device during automatic defrost. Do not remove the mains plug from the mains socket.

### Shutdown

1. Switch off the device at the mains switch (see chapter Operating elements).
2. Depending on the model, proceed as follows to remove condensation from the device:
   - ⇨ Empty the optional condensate pump by pressing the key for draining residual water from the condensate pump.
   - ⇨ Remove the condensation drain hose and any residual fluid from it.
3. Do not touch the mains plug with wet or damp hands.
4. Remove the mains plug from the mains socket.
5. Clean the device, and especially the air filter, according to the chapter Maintenance.
6. Store the device according to the chapter Storage.

## Errors and faults

The device has been checked for proper functioning several times during production. If malfunctions occur nonetheless, check the device according to the following list.

**The device does not start:**

- Check the power connection (1/N/PE ~ 230V/ 50 Hz).
- Check the mains plug for damages.
- Have the electrics checked by a specialist company for cooling and air-conditioning or by Trotec.

**The device is running, but no condensate forms:**

- Check the room temperature. Observe the device's permissible operating range according to the technical data.
- Ensure that the relative humidity complies with the technical data.
- Check the selected desired humidity level. The humidity in the room must be above the selected range. Reduce the selected relative humidity by turning the rotary switch, if necessary.
- Check the air filter for dirt. If necessary, clean or replace the air filter.
- From the outside, check the condenser for dirt (see chapter Maintenance). If your condenser is dirty, have it cleaned by a specialist company for cooling and air-conditioning or by Trotec.

**The device is loud or vibrates; condensate is leaking:**

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

**The device gets very warm, is loud or loses power:**

- Check the air inlets and air filter for dirt. Remove external dirt.
- From the outside, check the device for dirt (see chapter Maintenance). If the inside of the device is dirty, have it cleaned by a specialist company or by Trotec.

**Your device still does not operate correctly after these checks?**

Have the device repaired by authorised expert staff or by Trotec.

## Maintenance

### Maintenance intervals

| Maintenance and care interval | before every start-up | as needed | at least every 2 weeks | at least every 4 weeks | at least every 6 months | at least annually |
|---|---|---|---|---|---|---|
| Empty the condensate pump, condensation tray and/or condenser dryer | | X | | | | |
| Check the air inlets and outlets for dirt and foreign objects and clean if necessary | X | | | X | | |
| Clean the exterior | | X | | | | X |
| Visually check the inside of the device for dirt | | X | | | | X |
| Check the 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 damage | X | | | | | |
| Check the attachment screws | | X | | | | X |
| 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 the air inlets and outlets for dirt and foreign objects and clean if necessary | | | | | | | | | | | | | | | | |
| Check the condensate pump and tank and clean if necessary | | | | | | | | | | | | | | | | |
| Clean the exterior | | | | | | | | | | | | | | | | |
| Visually check the inside of the device for dirt | | | | | | | | | | | | | | | | |
| Check the air inlet grid and air filter for dirt and foreign objects and clean or replace if necessary | | | | | | | | | | | | | | | | |
| Replace air filter | | | | | | | | | | | | | | | | |
| Check for damage | | | | | | | | | | | | | | | | |
| Check the attachment screws | | | | | | | | | | | | | | | | |
| Test run | | | | | | | | | | | | | | | | |
| Remarks: | | | | | | | | | | | | | | | | |

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

## Activities required before starting maintenance

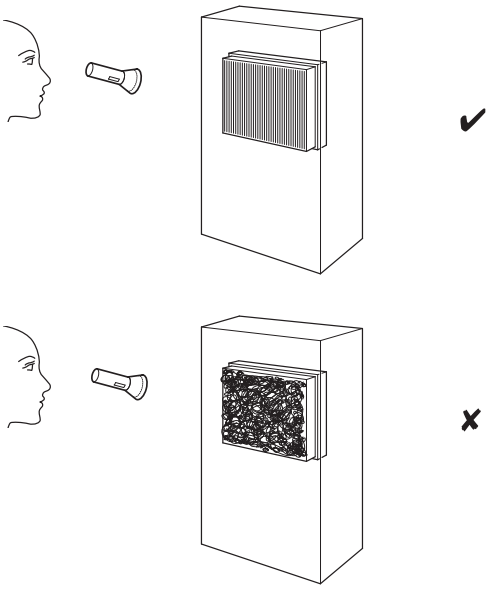
- Do not touch the mains plug with wet or damp hands.
- Before any work, remove the mains plug!

**Danger!**

**Maintenance tasks which require the housing to be opened must only be carried out by authorised specialist companies or by Trotec.**

## Visual inspection of the inside of the device for dirt

1. Remove the air filter.
2. Use a torch to illuminate the openings of the device.
3. If you see a thick layer of dust, have the inside of the device cleaned by a specialist company for cooling and air-conditioning or by Trotec.
4. Put the air filter back in.




## Cleaning the housing

Clean the device with a soft, damp and lint-free cloth. Ensure that no moisture enters the housing. Do not use abrasive cleaners.

## Refrigerant circuit

- The entire refrigerant circuit is a maintenance-free, hermetically sealed system and may only be maintained or repaired by specialist companies for cooling and air-conditioning or by Trotec.

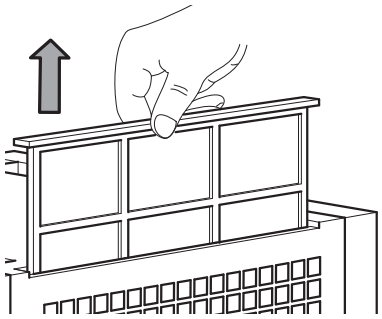
## Cleaning the air filter

The air filter has to be cleaned as soon as it is dirty. This is brought to light e.g. by a reduced capacity (see chapter Errors and faults).

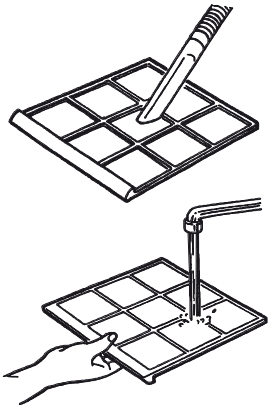
**Caution!**

Ensure that the air filter is not worn or damaged. The corners and edges of the air filter must not be deformed or rounded. Before reinserting the air filter, make sure that it is undamaged and dry!

**A.**



**B.**



**C.**

- Reinsert the cleaned, dry filter in the device in reverse order.

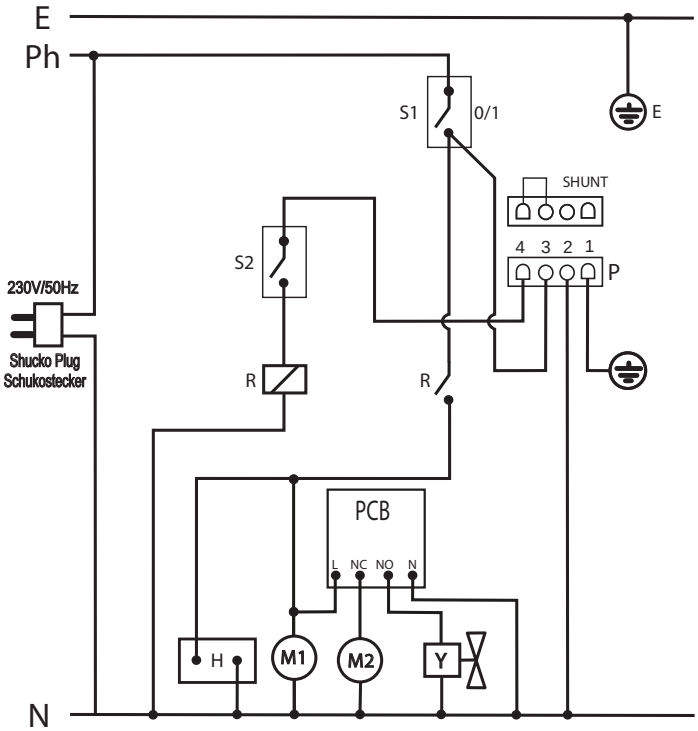
## Technical annex

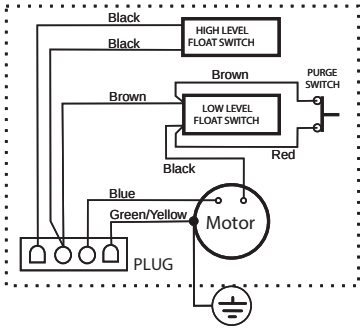
### Technical data

| Parameter | Value |
|---|---|
| **Model** | **TTK 655 S** |
| Dehumidification performance @ 30 °C / 80 % RH | 125 l / 24 h |
| Dehumidification performance, max. | 150 l / 24 h |
| Operating temperature | 5 °C - 32 °C |
| Operating range for relative humidity | 32 % - 100% RH |
| Air volume flow | 1000 $m^3$/h |
| Mains connection | 1/N/PE~ 230 V, 50 Hz |
| Power consumption, max. | 1.90 kW |
| Nominal current | 8.7 A |
| Refrigerant | R407c |
| Amount of refrigerant | 1300 g |
| Weight | 55 kg |
| Dimensions (HxDxW) | 810 x 485 x 605 mm |
| Minimum distance to walls or other objects | A: Top: 50 cm<br>B: Rear: 50 cm<br>C: Side: 50 cm<br>D: Front: 50 cm |
| Sound pressure level LpA (1 m; complies with DIN 45635-01-KL3) | 56 dB(A) |

## Wiring diagram

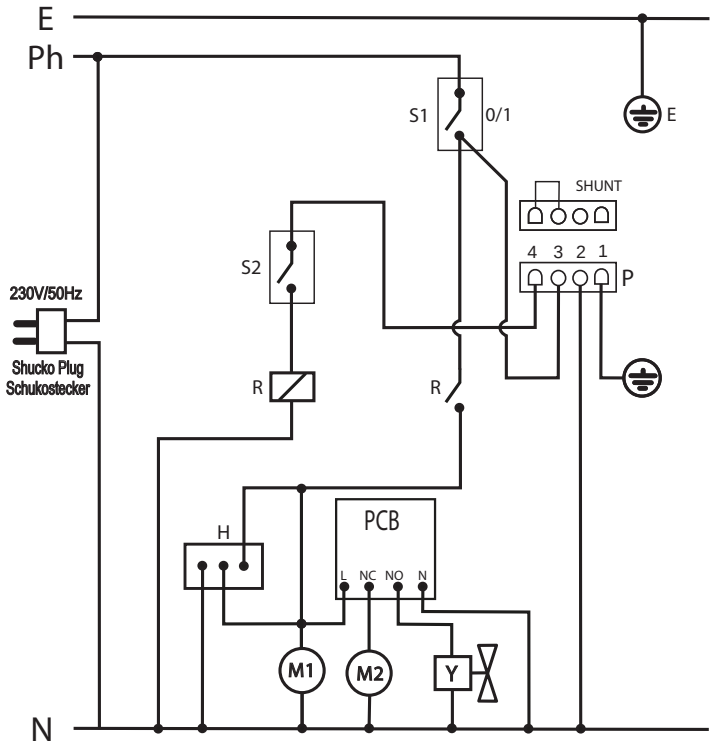
### Control panel with operating hours counter (standard)

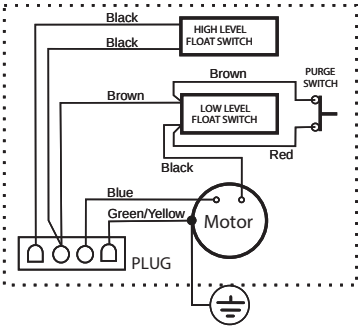



E - Earthing / Erdung
Ph - Electric phase / Elektrische Phase
N - Common line / Gemeinsame Leitung
S1 - Mains switch / Netzschalter
S2 - Humidistat / Hygrostat
H - Operating hours counter / Betriebsstundenzähler
M1 - Compressor / Kompressor
M2 - Fan motor / Lüftermotor
Y - Two way valve (defrost magnet valve) / Zwei-Wege-Ventil (Abtau-Magnetventil)
R - Power relay / Stromrelais
P - Water pump socket / Wasserpumpe Steckdose

## Control panel with operating hours and power consumption counter (optional)

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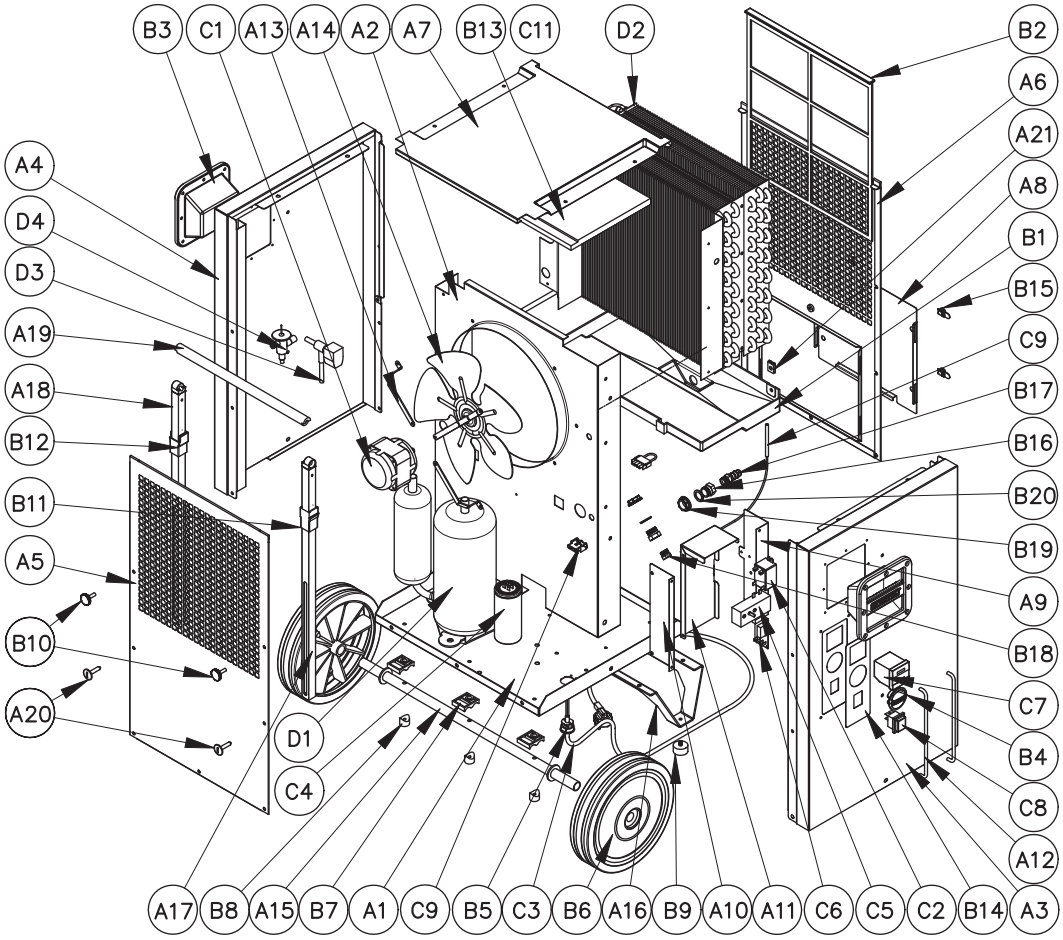
## Exploded assembly drawing

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

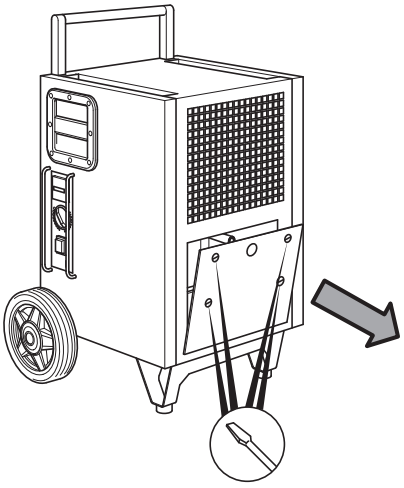


## List of spare parts

| No. | Spare part | No. | Spare part | No. | Spare part |
|---|---|---|---|---|---|
| A1 | Base Plate | B1 | PS Condensates' Water Pan | C1 | 25 W Output Electrical Motor Fan |
| A2 | Structural Element for Ø300 Fan | B2 | Reinforced PP Air Filter | C2 | 30 A Power Relay |
| A3 | Controls' Side Panel | B3 | ABS Trotec Grip | C3 | 3 m. H05VVF3G1.50 Supply Cable with Injected Schuko Plug |
| A4 | Side Panel | B4 | ABS Humidistat Adjusting Knob | C4 | 50 µF Starting Capacitor |
| A5 | Air Outlet Ventilation Grid | B5 | Cable Gland PA107 | C5 | Mechanical Hygrostat |
| A6 | Air Inlet Ventilation Grid | B6 | Ø250 mm Synthetic Rubber Wheel, with Black Plastic Rim | C6 | Printed Circuit Board |
| A7 | Top Hood | B7 | PVC Stacking Elements | C7 | Operating Hours Counter (Standard) |
| A8 | Back panel cover | B8 | Nylon Saddle Spacer | | Operating Hours Counter + Power Consumption Counter (Optional) |
| A9 | Protection Box - PCB Support | B9 | Ø30x15 EPDM Foot | C8 | Mains Switch + Transparent Silycon Cover |
| A10 | Protection Box - Left Support | B10 | Star Knob (Similar Design to DIN 6336) with Threaded Bolt | C9 | Temperature Probe |
| A11 | Protection Box - Cover | B11 | ACETAL Guide for Handle Bar (Left) | C10 | Pump Socket |
| A12 | Controls' Protection Bars | B12 | ACETAL Guide for Handle Bar (Right) | C11 | Shunt |
| A13 | Motor Fan Ø300 Brackets | B13 | EPS Top Plate | D1 | R407c Rotary Compressor |
| A14 | Ø300 Aluminium Sucking Fan Blade | B14 | PVC Control Panel Sticker | D2 | Finned Pack Condensing & Evaporating Coil |
| A15 | Ø20 Wheel Shaft | B15 | Quick release fastener | D3 | R407c Solenoid Valve |
| A16 | Foot | B16 | BSPT Pipe Bushing 1/2"-3/8" REF. 12011008068 | D4 | R407c Expansion Valve |
| A17 | 20x20 Square Aluminium Support for Sliding Handle (Left) | B17 | BSPT Male Hose Connector 3/8"-14MM REF. 12446854068 | n/a | Housing - M5 x 10 Screws; Black Passivated; ISO 7380 |
| A18 | 20x20 Square Aluminium Support for Sliding Handle (Right) | B18 | BSPT Hex Threaded Plug 3/8" REF. 12012106008 | n/a | Housing - PA Ø5 Washers |
| A19 | Ø20 Round Aluminium Profile for Sliding Handle | B19 | BSPT Nut 1/2" REF. 01.01.1334.012 | n/a | Plastic Grip - M4 x 16; Black Passivated; DIN 7500 |
| A20 | Handle Bar's Safety Pin | B20 | Washer 25x18x2MM REF. 3700008 | n/a | Aluminium Handle - M8 x 30; Black Passivated; DIN 7991 |

## Installing the condensate pump (optional)

1.



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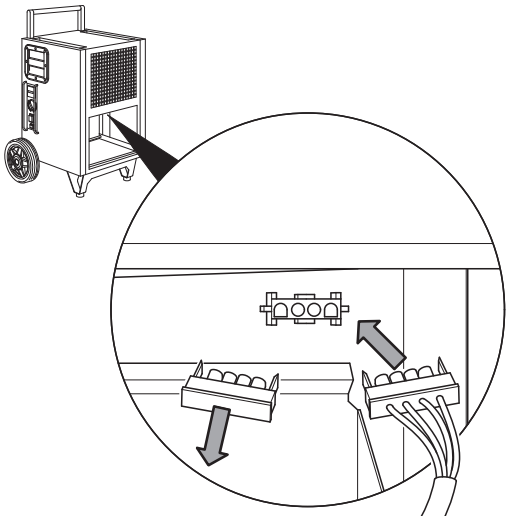

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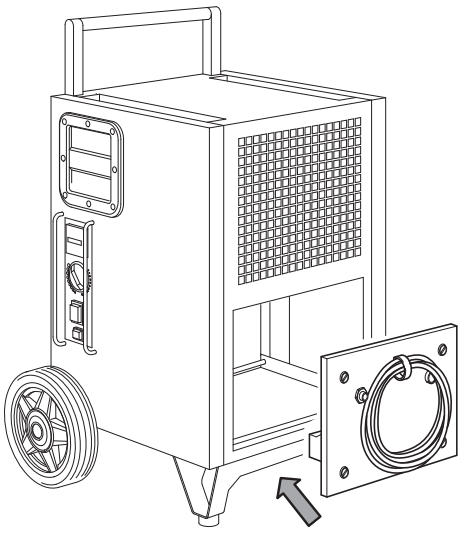
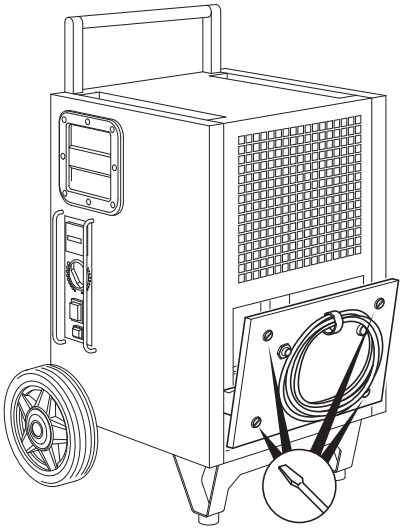
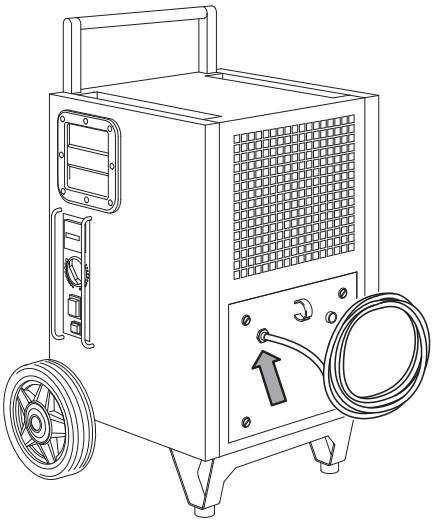


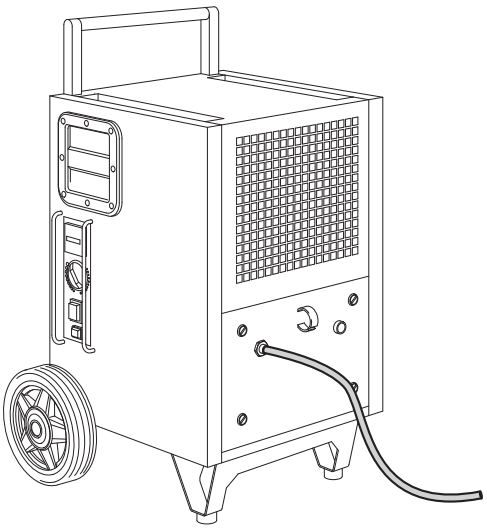
4.



5.



6.



## 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 of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE). At the end of its life, please dispose of this device according to the valid legal requirements.

The device uses an environmentally and ozone-neutral cooling agent (see Technical Data).

Dispose of the refrigerant 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 device TTK 655 S was developed, constructed and produced in compliance with the named EC directives.

Applied standards:
EN 60335-1:2012
EN 60335-2-40:2003 + A1:2006 + A2:2009 + A11:2004 + A12:2005 + A13:2012
EN 61000-3-2:2006 +A1:2009 + A2:2009
EN 61000-3-3:2008
EN 55014-1:2006 +A1:2009 + A2:2011
EN 55014-2:1997 +A1:2001 + A2:2008

The CE marking is found on the rear of the device.

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Heinsberg, 19.04.2012

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