

DH 145 S / DH 145 SH

EN

OPERATING MANUAL
CONDENSER DRYER



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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 property damage.

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



DH 145 S



<http://download.trotec.com/?sku=1125000223&id=1>

DH 145 SH



<http://download.trotec.com/?sku=1125000224&id=1>

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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 serial number (see nameplate).

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 cases, entitlements to a warranty are then also forfeited.

Safety

Read this manual carefully before starting or using the device. Always store the manual in the immediate vicinity of the device or its site of use!

- 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.
- The device is designed for indoor use.
- Let the device dry out after a wet clean. Do not operate it when wet.
- 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 sit on the device.
- 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.
- Pull the plug from the socket if the device is not in use.
- Unplug the device from the mains before starting with maintenance, service or repair work.

Intended use

Only use the devices of this series as a stationary industrial dryers for drying and dehumidifying room air, while adhering to and following the technical data.

Intended use comprises:

- drying and dehumidifying:
 - production plants, underground rooms
 - store rooms, archives, laboratories
 - rooms and areas after water damages from burst pipes or flooding
- keeping dry of:
 - instruments, devices, files
 - electrical control centres
 - moisture-sensitive goods, loads, etc.

Improper use

Do not place the device on wet or flooded ground. Do not use the device outdoors. Do not place any objects, e.g. wet clothing, on the device for drying. Any unauthorised modifications, such as alterations or structural changes 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.
- take measures to protect themselves from direct contact with live parts.
- 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!



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!

The device can cause injuries if it falls over! Always transport the device with the help of another person. Never stand below the device when it is suspended.

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 damp room air through the air inlet (2), the air filter (5), 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. Depending on the air temperature and the relative humidity, the condensed water either drops into the condensation tray continuously or only during the defrost phases. The condensation is fed through a pressure-resistant pipe connection and out of the device by a condensate pump*. To this end, a condensation drain hose is connected to the hose connector (7) and the condensation is diverted.

The device has a control panel (1) for operating and controlling the functions.

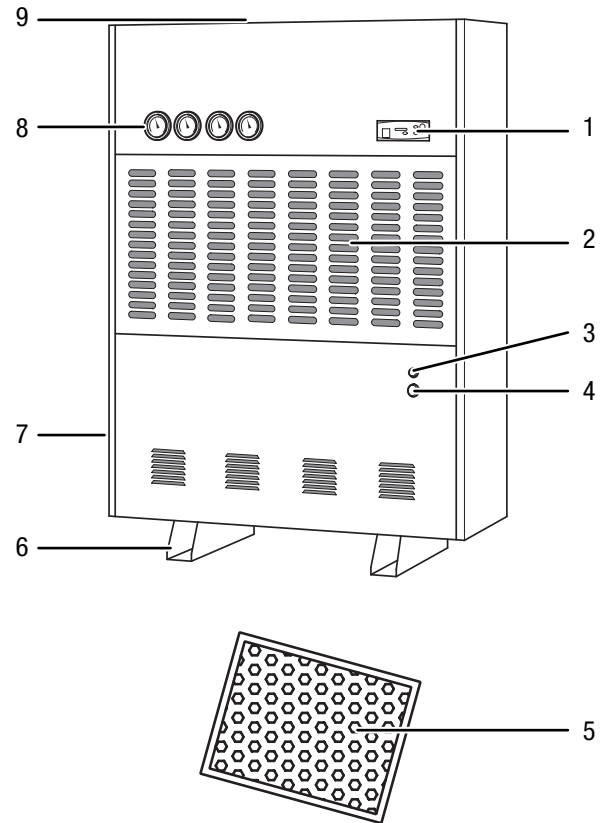
Because of the heat radiation which is tied up in operation, the room temperature can rise by approx. 1 to 3 °C.

Note!

The condensate pump* is fitted with a float switch. It completely switches off the condenser dryer when a critical filling level is reached in the condensation tank (emergency shut-off). A beep is emitted and the condensation tank indicator light (4) lights up. After troubleshooting, the condenser dryer must be switched back on by hand.

*) Not all device versions are equipped with a condensate pump.

Device depiction



No.	Designation
1	control panel
2	air inlet
3	button for draining residual water from the condensation tank (optional)
4	indicator light with buzzer for the condensation tank (optional)
5	air filter
6	feet with forklift pockets
7	hose connector for condensation drain hose
8	pressure indicator
9	air outlet

Transport and storage

Transport

Always transport the device with the help of another person. To lift the device, use a fork lift or pallet jack.

Before transporting the device, observe the following:

1. Wait until the condensate pump* stops pumping condensate.
2. Switch off the device at the mains switch (see chapter Operating elements) when the condensate pump* no longer feeds any condensation.
3. Press the button for draining residual water from the condensate pump*.
4. Remove the mains plug from the mains socket.
5. Detach the condensation drain hose and drain it.

While transporting the device, observe the following:

1. Transport the device in an upright position.
2. Avoid inclination angles above 45°.

After transporting the device, observe the following:

1. Set up the device in an upright position after transport.
2. **Wait one hour** before switching the device on!

*) Not all device versions are equipped with a condensate pump.

Storage

Drain any possibly remaining condensate.

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

- Dry.
- Protected from dust and direct sunlight.
- 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 chapter Technical Data.

Start-up

Mains connection

A 3/N/PE three-phase socket with clockwise rotating field is required to connect the device DH 145 S / DH 145 SH. The device is delivered with a CEE phase inverter, 32 A, 6 h.

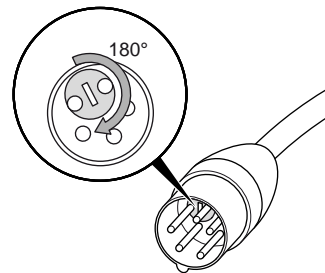
- Plug the plug into the respective CEE socket.

If the device does not start up automatically and one of the following error messages appears, the rotating field in the phase inverter must be corrected:

- DH 145 S: The error code E5 – Wrong rotating field is displayed.
- DH 145 SH: The ALARM indication is illuminated.

Correct the rotating field in the phase inverter as follows:

1. Pull the plug from the mains socket.
2. Use a suitable flat-head screwdriver.
3. Turn the commutator slot in the CEE plug 180°.



⇒ Phases are now inverted.

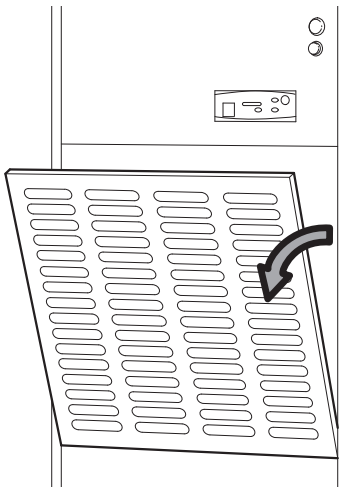
4. Plug the plug back into the socket.

Avoid trip hazards from the cable.

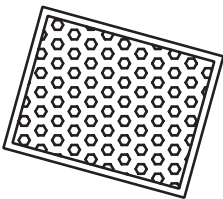
Inserting the air filter

- Insert the air filter into the device as follows:

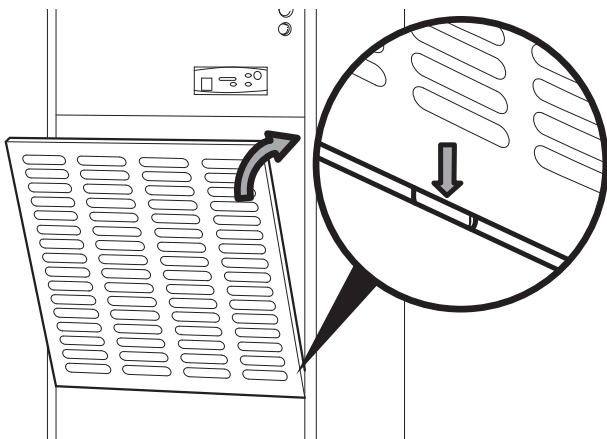
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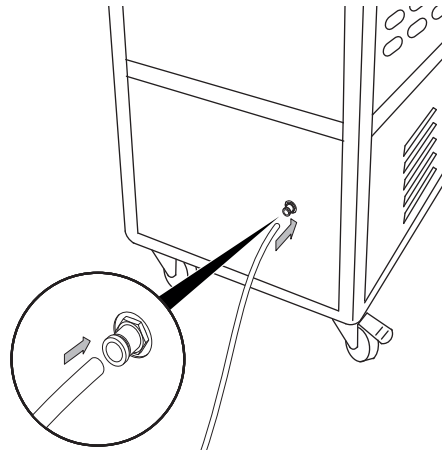


3.



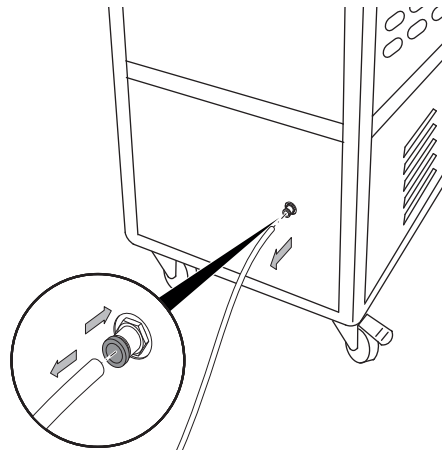
Connecting the condensation drain hose

1. Plug the hose (\varnothing 8 mm) into the quick coupling.
⇒ The hose automatically locks in place.



Removing the condensation drain hose

1. Press the blue ring on the outside of the quick coupling together and at the same time pull the hose.



Switching the device on

- ✓ Ensure that the condensation drain hose has been laid and connected properly. Do not create tripping hazards.
 - ✓ Ensure that the condensation drain hose is not bent or jammed and that there are no objects on the condensation drain hose.
 - ✓ Ensure that the condensation can run off properly.
 - ✓ Condensate pump (optional): Empty any condensation from the device by pressing the push switch for draining residual water from the condensate pump.
1. DH 145 S: Press the *ON/OFF* button (15).
DH 145 SH: Turn the selection switch (19) to the desired position.
 - ⇒ The fans start up.
 - ⇒ The preselected humidity level must be lower than the current humidity value.
 - ⇒ After a start-up period of approx. 3 minutes, the compressor switches on and the device starts dehumidifying.
 2. Check whether the *OPERATION* indicator is illuminated.
 - ⇒ If an error message is displayed, please follow the instructions in the chapter Mains connection.
 3. Regulate the desired room humidity level via the arrow buttons (14) or the selection switch (19).
 4. Leave the device running for at least 3 minutes.

Note!

If the device is operated at low surrounding conditions, the compressor is stopped for 8 minutes every 51 minutes.

Operation

- After being switched on, the device operates fully automatically.
- To ensure that the built-in sensor can correctly detect the humidity, the fan continues to operate until the device is switched off.
- 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

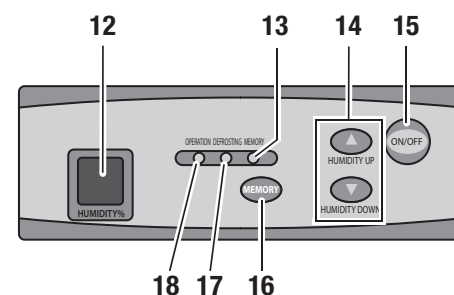
The dehumidification performance depends on:

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

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

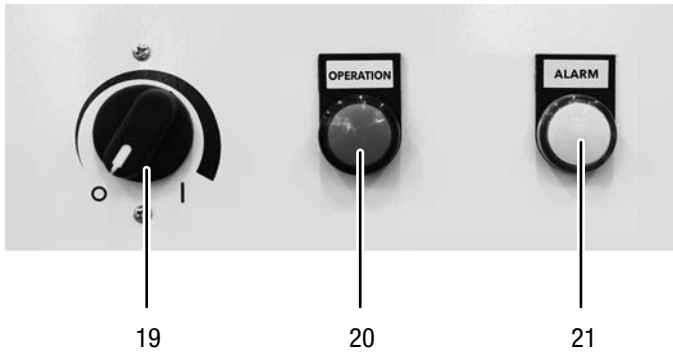
For use in living rooms, a relative humidity of approx. 50 to 60 % is sufficient. In storage facilities and archives, the humidity should not exceed approx. 50 %.

Operating elements DH 145 S



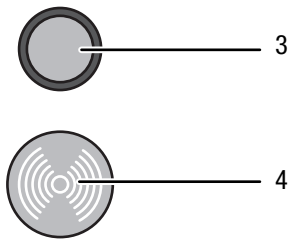
No.	Designation
12	Display of the selected humidity in percentage or <i>CO</i> for continuous operation mode (value < 30 %). The default value is 60 % RH.
13	<i>MEMORY</i> indicator light: Is illuminated if the current humidity setting is saved.
14	Use the arrow buttons to set the desired humidity level. You can set a value between 30–90 %. The device will be deactivated once the desired value is reached. The device will be activated once the set value is exceeded by 3 %. Briefly press the appropriate arrow button to change the humidity value. <i>HUMIDITY UP</i> button – arrow up: Increases the humidity value. <i>HUMIDITY DOWN</i> button – arrow down: Decreases the humidity value.
15	<i>ON/OFF</i> mains switch: Switches the device on or off.
16	<i>MEMORY</i> button: Saves the current humidity setting. The next time the device is started, the saved setting will be activated automatically. To deactivate this function, press the button again. The corresponding indicator light (see 13) goes out.
17	<i>DEFROSTING</i> indicator light (automatic defrost): Is illuminated when the automatic defrost is active. Do not switch the device off during this period!
18	<i>OPERATION</i> indicator light

Operating elements DH 145 SH



No.	Designation
19	Humidity level selection switch The selection switch can be used to: <ul style="list-style-type: none"> • switch the device on (I) or off (O). • adjust the humidity level: the compressor will switch off at the preselected humidity level. • dehumidify the air constantly; to do so, turn the switch to the right to I.
20	OPERATION indication: Is illuminated once the device is switched on.
21	ALARM indication: Is illuminated in case of a wrong rotating field in the mains connection. This device does not start up, see also chapter Mains connection.

Operating elements condensate pump (optional)



No.	Designation
3	Push switch for draining residual water from the condensate pump
4	Condensation tank indicator: Lights up and emits an acoustic signal when the condensation tank is full.

Setting continuous operation

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

DH 145 S:

- To start continuous operation, keep pressing the *HUMIDITY DOWN* – arrow down button (14) until *CO* is indicated on the humidity display (12).

DH 145 SH:

- Turn the selection switch (19) to maximum (I).

Automatic defrost

If the room temperature is below 15 °C, the evaporator will freeze during dehumidification. The device will then carry out an automatic defrost.

The duration of the defrost process can vary.

- The automatic defrost is interrupted once you actuate the mains switch (15) or the arrow buttons (14) at the DH 145 S, or the selection switch (19) at the DH 145 SH.
- Do not switch off the device during automatic defrost. Do not remove the mains plug from the mains socket.

Memory function (DH 145 S only)

In case of brief power failures the device memorizes the programmed nominal value for humidity. The pre-programmed start and stop times for automatic operation are not saved.

Shutdown

1. Press the *ON/OFF* button (15).
2. Press the button for draining residual water from the condensate pump (optional, 3).
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 and any residual fluid from it.
6. Clean the device, and especially the air filter, according to the chapter Maintenance.
7. Store the device according to the chapter Storage.

Note!

After every switch-off, wait for at least 3 minutes. Only then switch the device back on.

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.

Note:

Always leave the device running for at least 3 minutes. After switch-off, wait for at least 3 minutes before switching the device back on.

The device does not start:

- Check the power connection. (3/N/PE~ 400 V 50 Hz - clockwise rotating field). If a rotating field error is displayed, change the rotating field using the phase inverter. Check whether all phases are present.
- Check the mains plug for damages.
- If the fault indicator of the condensate pump (optional) lights up or an acoustic signal is emitted, check the device's water drain for obstructions first. Have faults rectified by a specialist company for cooling and air-conditioning or by Trotec.
- 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 whether the condensation drain hose is positioned correctly.
- Check that the condensate pump functions properly. Check for abnormal vibrations and sounds. Remove external dirt.
- 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 at least 3 % above the selected range. Reduce the preselected desired humidity level.
- 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 gets very warm, is loud or loses power:

- Check the air inlets and air filter for dirt. Remove external dirt.
- Check the inside of the device and especially the fan, the fan housing, the evaporator, the condenser and the condensate pump for external dirt (see chapter Maintenance). If the inside of the device is dirty, have it cleaned by a specialist company for cooling and air-conditioning or by Trotec.

Possible error codes (DH 145 S)

Error code	Meaning
E1	Error message of the humidity sensor: The humidity is outside the specified values or the sensor is defective.
E2	Error message of the sensor in refrigerant circuit A
E5	Wrong rotating field: Correct the rotating field on the CEE phase inverter. Check the power connection.
E8	Error message of the sensor in refrigerant circuit B

Your device still does not operate correctly after these checks? An error number is shown in the display of your device?

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

Maintenance

Activities required before starting maintenance

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



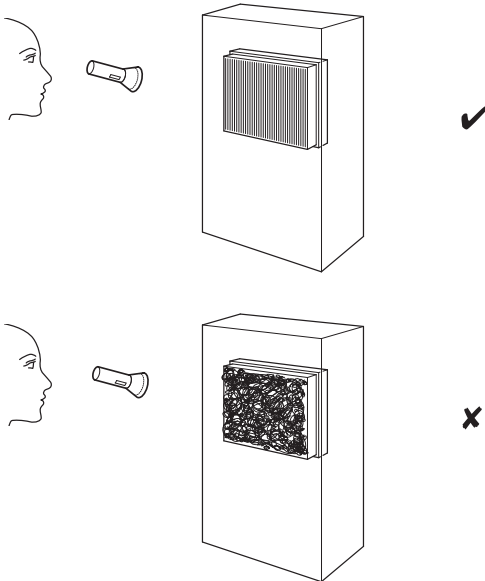
Danger!



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

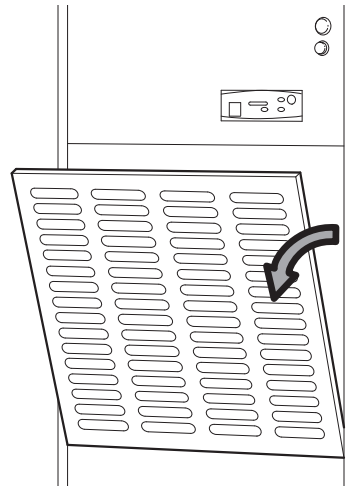
The air filter has to be cleaned as soon as it is dirty. This is brought to light e.g. by a reduced cooling capacity (see chapter Errors and faults).



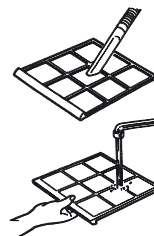
Caution!

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!

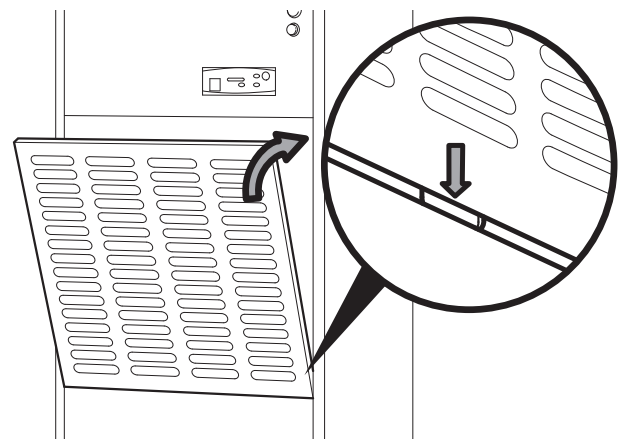
1.



2.



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

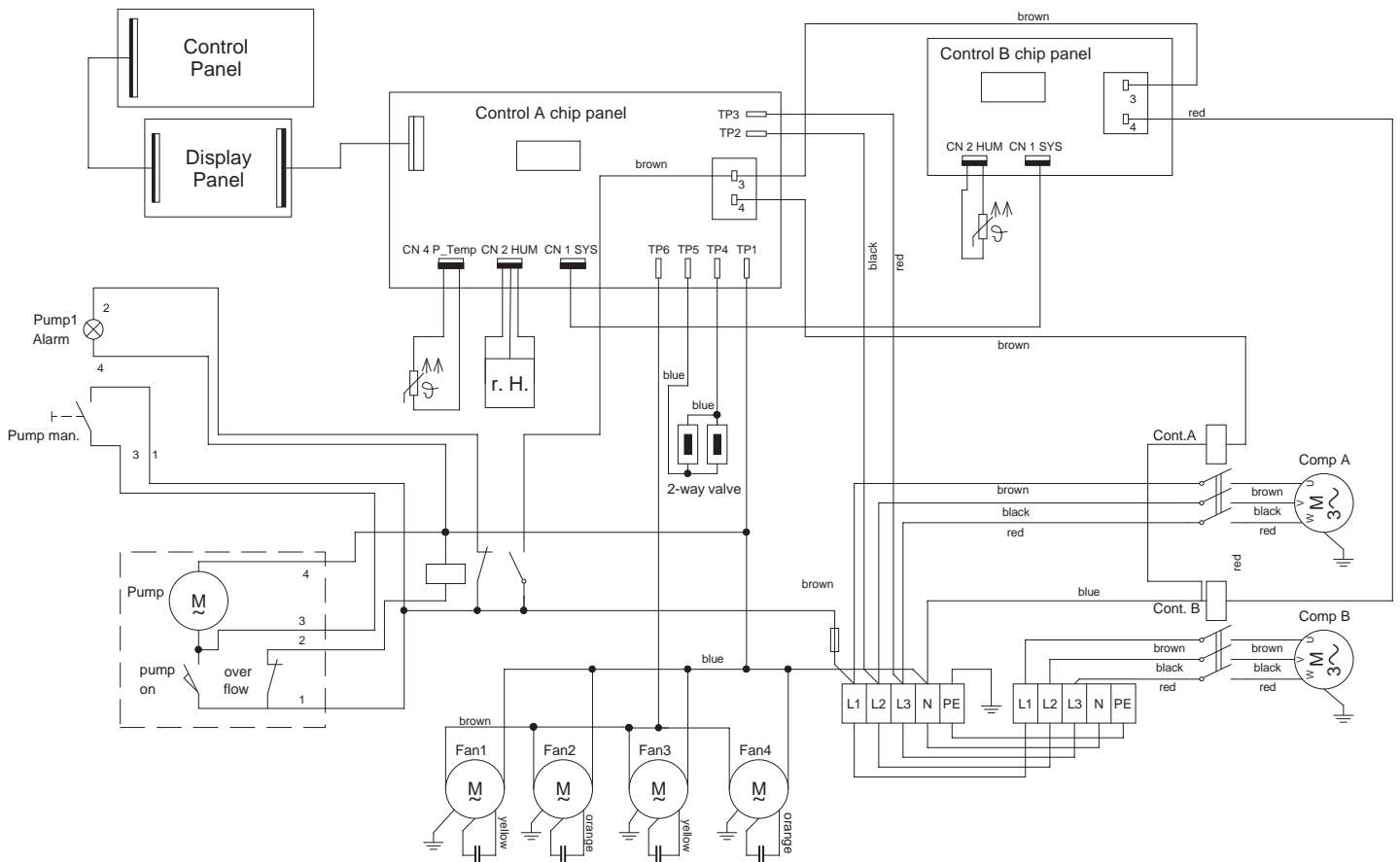


Technical annex

Technical data

Parameter	Value	
Model	DH 145 S	DH 145 SH
Dehumidification performance, max.	480 l / 24 h	480 l / 24 h
Operating temperature	5 °C to 32 °C	5 °C to 32 °C
Working range for relative humidity	30–90 %	30–90 %
Air flow rate, max.	5000 m ³ /h	5000 m ³ /h
Mains connection	3/N/PE ~ 400 V 50 Hz with CEE phase inverter 32 A	3/N/PE ~ 400 V 50 Hz with CEE phase inverter 32 A
Power consumption nom. / max.	9.8 kW / 12 kW	9.8 kW / 12 kW
Nominal input current nom. / max.	14.2 A / 17.3 A	14.2 A / 17.3 A
Refrigerant	R 407 C	R 407 C
Amount of refrigerant	3.2 kg	3.2 kg
Weight	235 kg	235 kg
Dimensions (width x height x depth)	1195 x 1730 x 460 mm	1195 x 1730 x 460 mm
Maximum pressure low-pressure side	1.0 MPa	1.0 MPa
Maximum pressure high-pressure side	2.5 MPa	2.5 MPa
Minimum distance to walls and other objects		Top: 50 cm Rear: 50 cm Side: 50 cm Front: 50 cm
Noise level (distance 1 m)	68.5 dB(A)	68.5 dB(A)

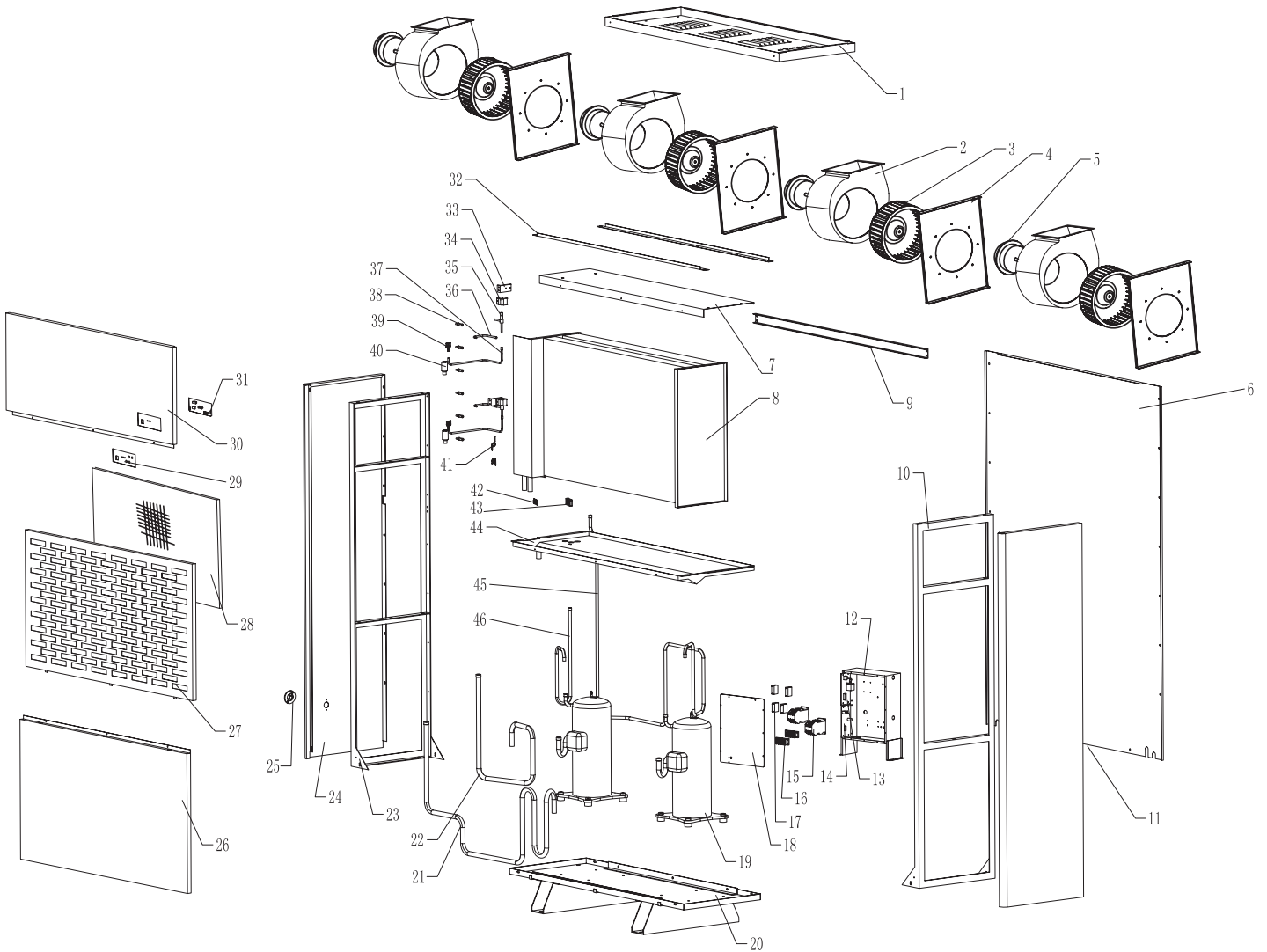
Wiring diagram



Overview and list of spare parts

Note!

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



No.	Spare part	No.	Spare part	No.	Spare part
1	chassis and component	17	capacitor	33	hot gas mounted panel
2	scroll casing	18	electrical box cover	34	hot gas coll
3	fan blade	19	compressor	35	hot gas
4	fan mounting plate	20	chassis and component	36	hot gas air in pipe
5	fan motor	21	compressor A pipe	37	hot gas air out pipe
6	back panel and component	22	compressor B pipe	38	refrigerant in tube
7	condenser and component	23	left support and component	39	defrost distributor
8	evaporator component	24	left panel	40	distributor
9	support II	25	water out connector	41	capillary tube
10	right support component	26	front lower panel	42	humidity sensor
11	right side panel	27	air inlet	43	sensor box
12	electrical box	28	filter net	44	drip tray
13	main control board A	29	film switch	45	compressor A exhaust pipe
14	main control board B	30	upper front panel	46	compressor B exhaust pipe
15	AC contactor	31	display		
16	wire holder	32	fan support		

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 DH 145 S / DH 145 SH was developed, constructed and produced in compliance with the named EC directives.

Applied standards:

EN 60335-1:2012,

EN 62233:2008,

EN 60335-2-40:2003+A11:2004+A12:2005+A1:2006+A2:2009+A13:2012,

EN 55014-1:2006+A1:2009+A2:2011,

EN 55014-2: 1997+A1: 2001+A2: 2008,

EN 61000-3-2: 2006+A1:2009+A2:2009,

EN 61000-3-3: 2008

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

Manufacturer:

Trotec GmbH & Co. KG

Grebbeener Straße 7

D-52525 Heinsberg

Phone: +49 2452 962-400

Fax: +49 2452 962-200

E-mail: info@trotec.com

Heinsberg, 20. Mai 2013

Detlef von der Lieck

Managing Director

Trotec GmbH & Co. KG

Grebener Str. 7
D-52525 Heinsberg

☎ +49 2452 962-400

☎ +49 2452 962-200

✉ info@trotec.com

www.trotec.com