

DH 75/110 AX/BX

EN *Operating Manual – Condenser dryer DH 75/110 AX/BX*



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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

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Information about the device

Description of the device

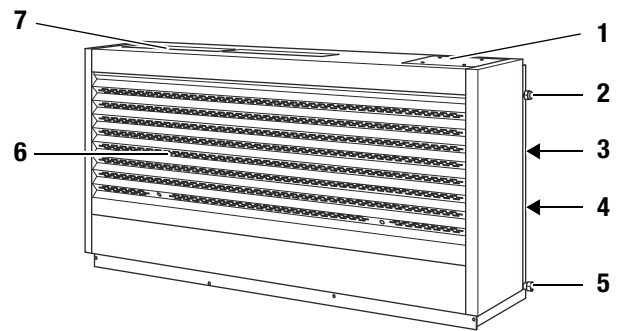
This device uses the principle of condensation to automatically dehumidify rooms.

The fan sucks damp room air through the air inlet (6), 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 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 via the air outlet (7). 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 condensate is discharged from the device via a condensation drain hose (5).

Located on top of the device underneath the protective cover is a control panel (1). To be found there is a hygrometer with control dial to adjust the desired humidity level. This control dial can be easily accessed once the protective cover has been removed.

The device can reduce the relative humidity of a room by up to approx. 30 %. Because of the heat radiation which is tied up in operation, the room temperature can rise by approx. 1-3 °C.

Device depiction



No.	Operating element
1	control panel and control box (underneath the protective cover)
2	connection for power cable
3	connection for water outlet when using heat recovery (optional with the respective models)
4	connection for water inlet when using heat recovery (optional with the respective models)
5	hose connector for condensation drain hose
6	air inlet
7	air outlet

Note!

If you have further questions on how to use heat recovery, please contact your TROTEC[®] customer service.

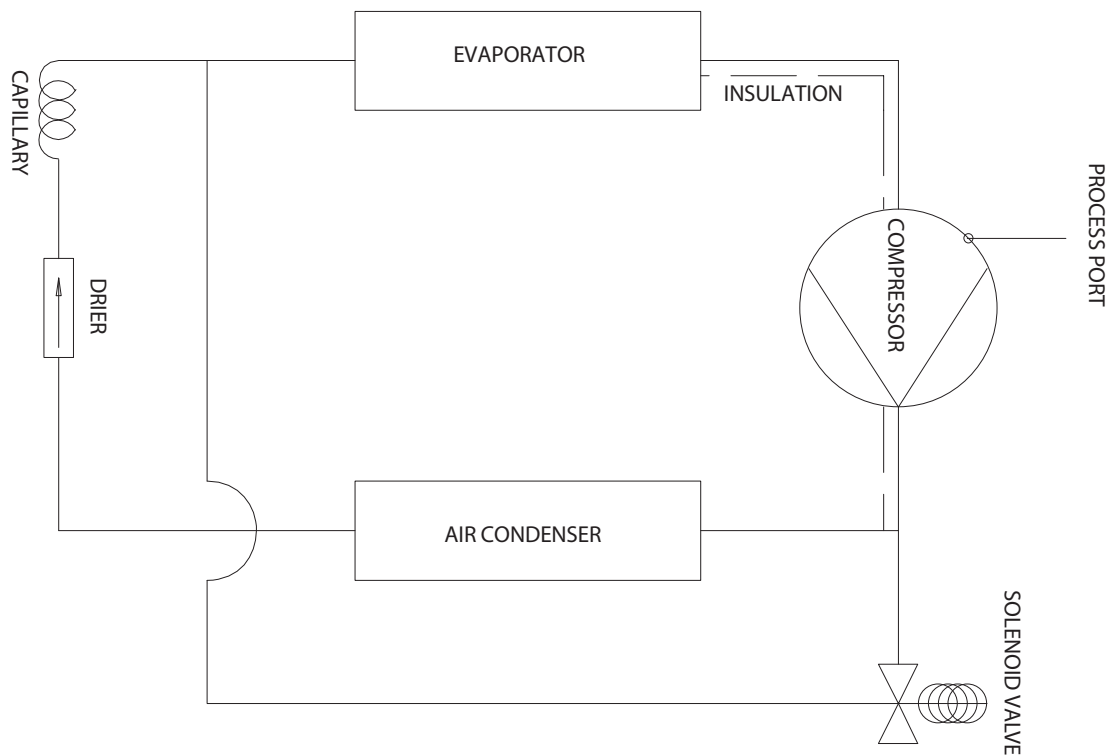
Scope of delivery

- Condenser dryer DH 75/110 AX/BX
- condensation drain hose
- Operating manual

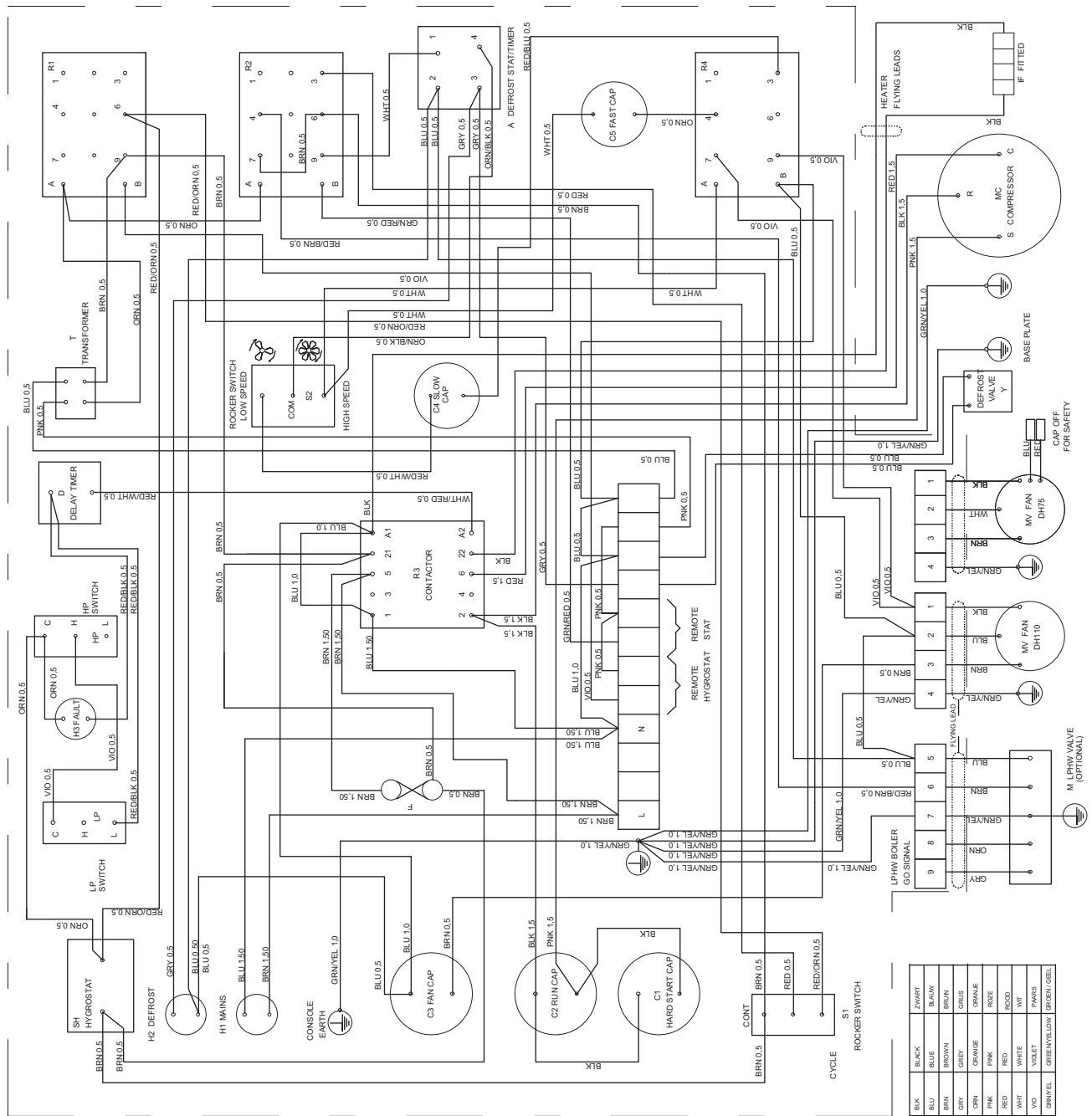
Technical data

Parameters	Value		
Model	DH 75 AX	DH 110 AX	DH 110 BX
Dehumidifying capacity, max.	135 l / 24 h	150 l / 24 h	150 l / 24 h
Operating temperature	5-40 °C	5-40 °C	5-40 °C
Operating range for relative humidity	30-90 %	30-90 %	30-90 %
Air flow rate, max.	1180 m ³ /h	1180 m ³ /h	1180 m ³ /h
Electric connection	230 V / 50 Hz	230 V / 50 Hz	400 V / 50 Hz
Power input	1500 W	1900 W	1900 W
Fuse (home)	16 A	20 A	10 A
Cooling agent	R407c	R407c	R407c
Amount of cooling agent	2 kg	2 kg	2 kg
Weight	143 kg	144 kg	144 kg
Dimensions (HxDxW)	796 x 385 x 1520 mm	796 x 385 x 1520 mm	796 x 385 x 1520 mm
Minimum distance from walls of other objects	A: Above: 50 cm B: Side: 50 cm C: Front: 50 cm	A: Above: 50 cm B: Side: 50 cm C: Front: 50 cm	A: Above: 50 cm B: Side: 50 cm C: Front: 50 cm
Sound pressure level LpA (1 m; complies with DIN 45635-01-KL3)	53 dB(A)	53 dB(A)	53 dB(A)

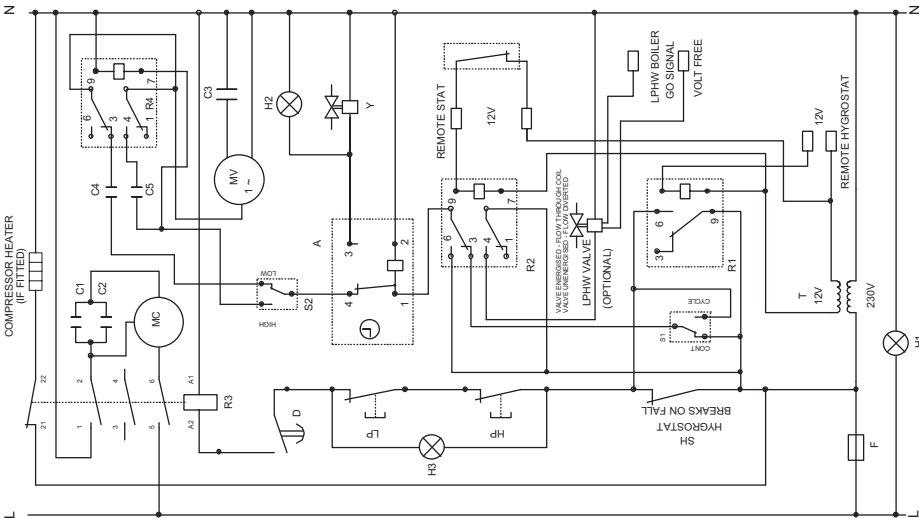
Cooling circuit diagram



Circuit diagram DH 75/110 AX

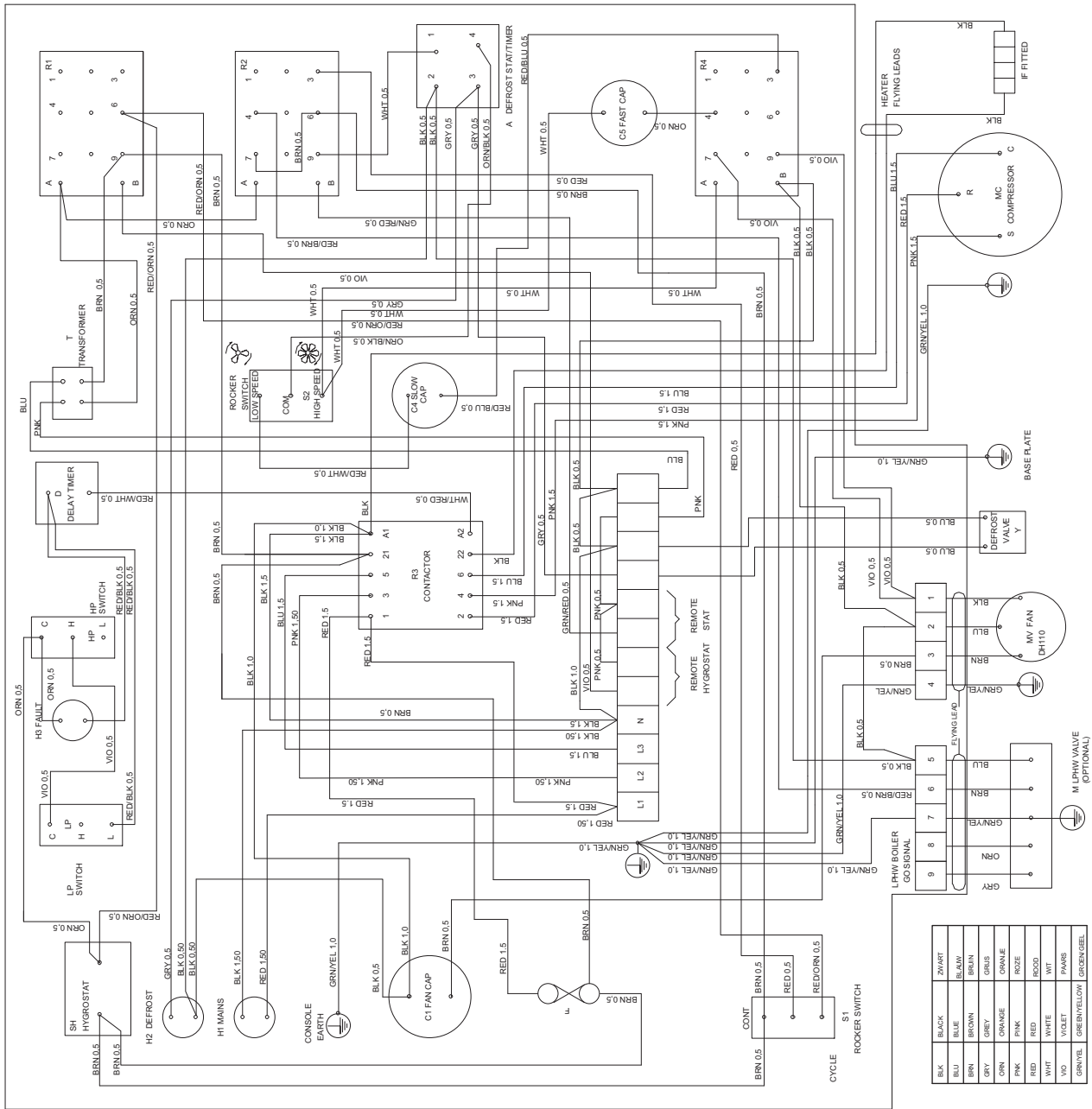


BLK	ZWART
BLU	BLAUW
BRN	BROUW
GRY	GRIS
ORN	ORANJE
PNK	ROZE
RED	ROOD
WHT	WIT
WVD	VOLLET
GRNVEL	GRUENVELD

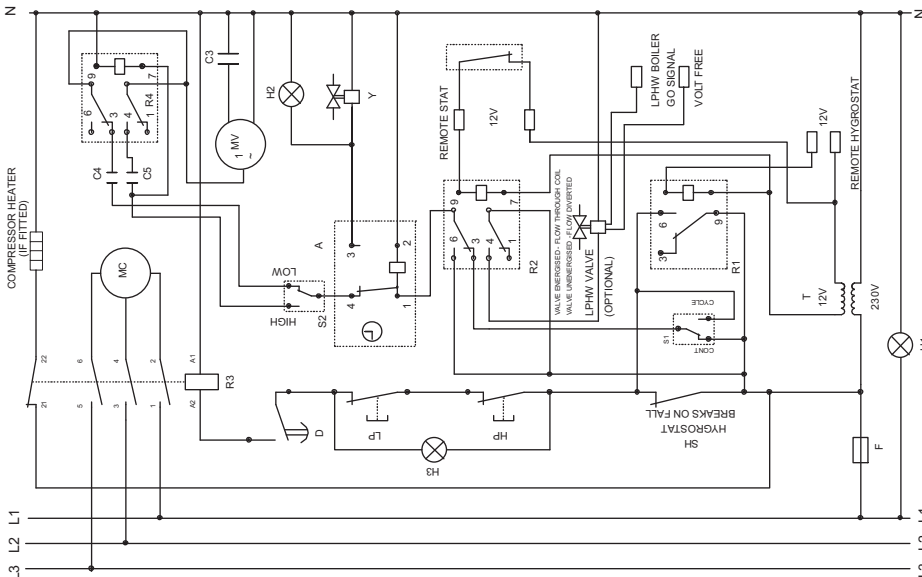


A	DEFROST THERMOSTAT	THERMOSTAT DE DÈGÈLAGE
C1	CAPACITOR START	CONDENSATEUR DE DÉMARRAGE
C2	CAPACITOR RUN	CONDENSATEUR DE COURSE
C3	CAPACITOR FAN	CONDENSATEUR DE VENTILATEUR
C4	CAPACITOR SLOW	CONDENSATEUR MÈDIO-ALTE
C5	CAPACITOR FAST	CONDENSATEUR RAPIDE
D	DELAY TIMER	TEMPORISATEUR
F1	DEFROST THERMOSTAT	THERMOSTAT DE DÈGÈLAGE
F2	DEFROST THERMOSTAT	THERMOSTAT DE DÈGÈLAGE
HP	HIGH PRESSURE SWITCH	REINTEGRATION DE LA HAUTE PRESSION
LP	LOW PRESSURE SWITCH	REINTEGRATION DE LA BASSE PRESSION
MC	COMPRESSOR MOTOR	COMPRESSEUR
MV	FAN MOTOR	MOTEUR DU VENTILATEUR
R	RELAY CONTACTOR	RELÈVEUR CONTACTEUR
R1	REMOTE THERMOSTAT	TEMPERATURE SENSITIVE SWITCH
R2	REMOTE THERMOSTAT	TEMPERATURE SENSITIVE SWITCH
S1	SOLENOID VALVE	SOLENOÏDE
S2	SOLENOID VALVE	SOLENOÏDE
S3	SOLENOID VALVE	SOLENOÏDE
S4	SOLENOID VALVE	SOLENOÏDE
T	TRANSFORMER	TRANSFORMATEUR
TH	THERMAL CUTOUT	LIÈRENTZSCHUTZ
TI	THERMAL CUTOUT	LIÈRENTZSCHUTZ
Y	SOLENOID VALVE	SOLENOÏDE

Circuit diagram DH 110 BX



BLK	BLACK	ZWART
BLU	BLUE	BLAUW
BRN	BROWN	BRUIN
GRY	GREY	GRIS
ORN	ORANGE	ORANJE
PNK	PINK	ROZE
RED	RED	ROOD
WHT	WHITE	WIT
VIO	VIOLET	PAARS
GRN	GREEN/YELLOW	GRENGEEL



A	DEFROST THERMOSTAT TIMER	ABTJATHERMOSTAATTIJD	THERMOSTAT DE DEGRIJSTIJD
C1	CAPACITOR START	KONDENSATOR COMPRESSOR	KONDENSATOR COMPRESSOR
C2	CAPACITOR FAN	KONDENSATOR VEILIGHEID	KONDENSATOR VEILIGHEID
C3	CAPACITOR FAN	KONDENSATOR VEILIGHEID	KONDENSATOR VEILIGHEID
C4	CAPACITOR SLOW	KONDENSATOR VEILIGHEID	KONDENSATOR VEILIGHEID
X	RELAY CONTACT	RELAY CONTACT	RELAY CONTACT
S1	ROCKER SWITCH	ROCKER SCHAKTEL	ROCKER SCHAKTEL
F	FUSE	ZICHERING	ZICHERING
FT	DEFROST THERMOSTAT	VEREENSCHUZZTHERMOSTAT	THERMOSTAT DE DEGRIJSTIJD
H1	LAMP	LAMPE	LAMPE
HP	HIGH PRESSURE SWITCH	HOCHDRUCKSCHALTER	REINITIALISATION DEFAYT HAUTE PRESSION
LP	LOW PRESSURE SWITCH	NIEDERDRUCKSCHALTER	REINITIALISATION DEFAYT BASSE PRESSION
MC	COMPRESSOR MOTOR	KOMPRESSORMOTOR	KOMPRESSOR
MV	FAN MOTOR	VENTILATORMOTOR	VENTILATOR
R1	RELAY CONTACT	RELAY CONTACT	RELAY CONTACT
X	RELAY CONTACT	RELAY CONTACT	RELAY CONTACT
S1	ROCKER SWITCH	ROCKER SCHAKTEL	ROCKER SCHAKTEL
SH	DEFROST SWITCH	DEFROST SCHAKTEL	DEFROST SCHAKTEL
T	TRANSFORMER	TRANSFORMATOR	TRANSFORMATOR
TC	THERMAL CUTOFF	LIBERTHERMSCHUTZ	PROTECTION THERMIQUE
TH	LP/WV THERMOSTAT	LP/WV THERMOSTAT	THERMOSTAT LP/WV
Y	SOLENOID VALVE	MAGNETVENTIL	VALVE ELECTROMAGNETIQUE

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 a horizontal and sufficiently stable position.
- Do not expose the device to directly squirting water.
- 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 and hoses outside of the device are protected from damage (e.g. from animals).
- Only transport the device in an upright position with an emptied condensate pump and tray.
- Dispose of the collected condensation. Do not drink it. There is a risk of infection!
- The connection may only be performed by an electrically skilled person.

Intended use

Only use the device DH 75/110 AX/BX as a stationary 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
 - industrial processes and products
 - ship engine rooms
 - water processing facilities and pump stations
- maintaining the dryness of:
 - instruments, devices and files
 - electric control devices, boiler plants, turbines and pipe systems in power plants
 - moisture-sensitive loads etc.
- prevention of condensate formation in tranship zones or cooling houses

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!



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 falling device can cause injuries! Always utilize the help of another person to transport and assemble the device. Never stand below the device when suspended in the air.

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

The manufacturer packed the device to the best of his abilities to protect it against transport damages. Further information regarding safe transport is to be found in form of multilateral signs on the packaging.

Always 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. Only have an electrically skilled person disconnect the power cable!
2. Remove the condensation drain hose and any residual fluid from it.

After transporting the device, proceed as follows:

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

Only have the power cable connected to the terminal block of the control box (underneath the protective cover) by an electrically skilled person!

Storage

When out of use, store the device as follows:

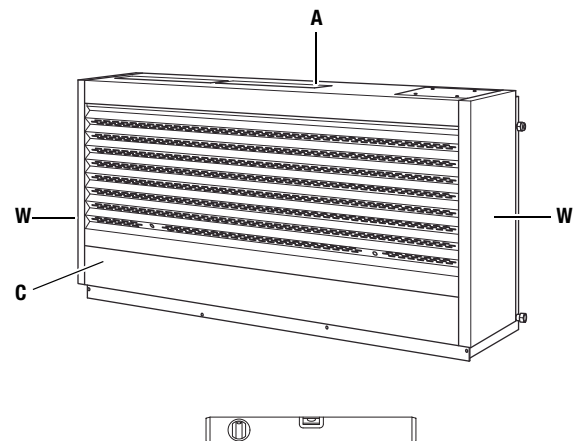
- dry,
- with a roof overhead,
- in an upright position where it is protected from dust and direct sunlight,
- with a plastic cover to protect it from invasive dust, if necessary.
- The storage temperature is the same as the range given for the operating temperature in the chapter Technical Data.

Operation

- After being switched on, the device operates fully automatically.
- So that the built in sensor can correctly detect the relative 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 in a level and stable position.
- When positioning the device, keep a sufficient distance away from sources of heat.
- 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.

Notes regarding the dehumidification performance

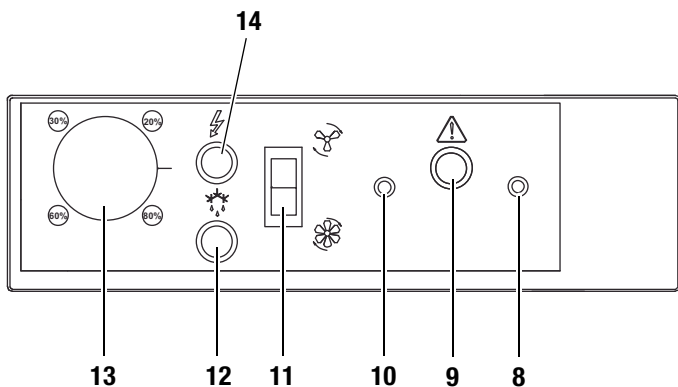
Dehumidification performance depends on:

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

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

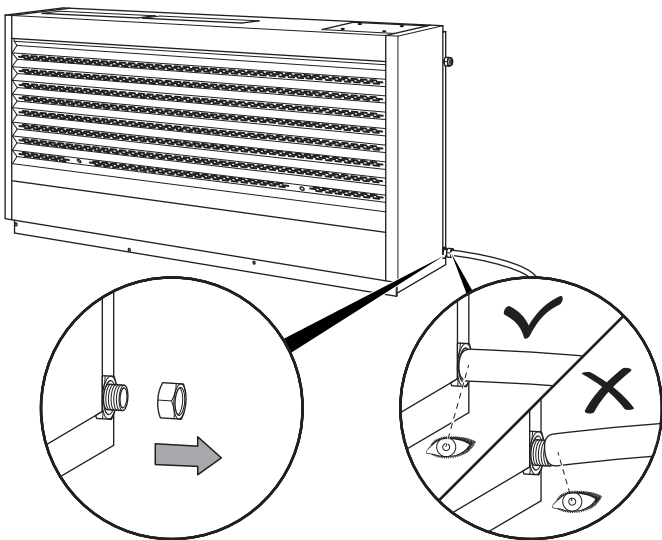
For using in living rooms, a relative humidity of approx. 50-60 % is sufficient. In store rooms and archives, the humidity should not exceed approx. 50 %.

Operating elements



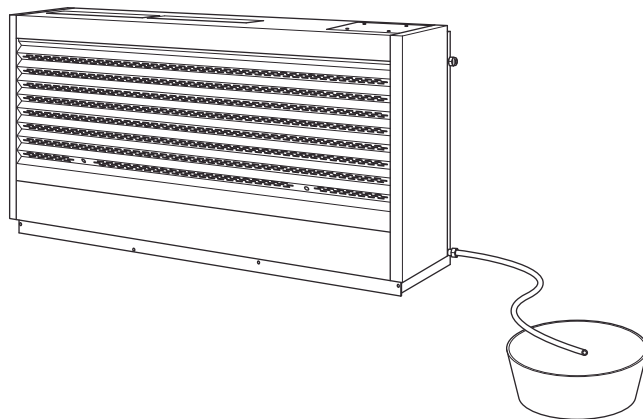
No.	Operating element
8	HP (high-pressure) reset switch: Press this push switch, when the fault indicators (9) are lit.
9	Fault indicator
10	LP (low-pressure) reset switch: Press this push switch, when the fault indicators (9) are lit.
11	Flip switch fan speed: Position up: low fan speed Position down: high fan speed
12	Automatic defrost indicator light
13	Control dial hygrostat
14	Operation indicator

Operation with hose attached to the condensation plug

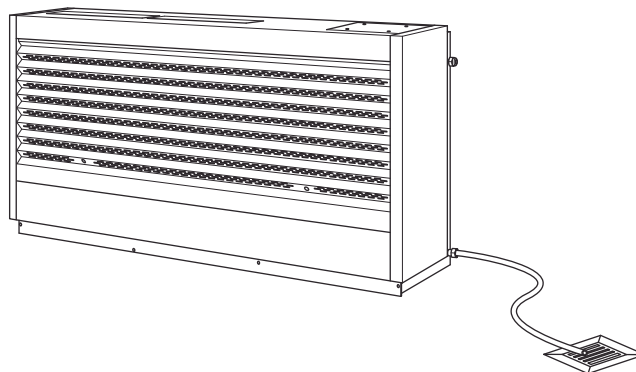


Positioning the condensation drain hose

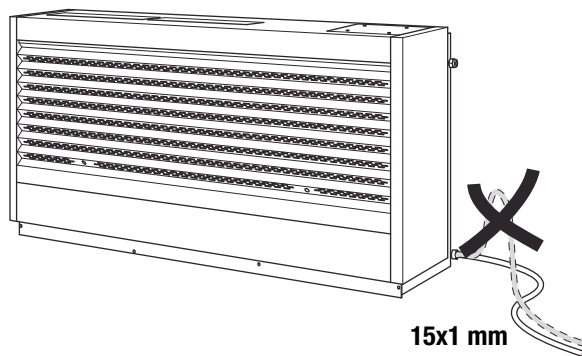
1. Ensure that the condensation drain hose is properly connected to the device and is free of damage.
2. Depending on use, position the end of the condensation drain hose as follows:
 - Position a sufficiently large container (at least 20 litres) beside the device and insert the hose end. Check the fill 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.



3. Ensure that the condensation drain hose always descends.



Switch device on

1. Ensure that the condensation drain hose has been laid and connected properly. Do not create tripping hazards.
2. Ensure that the condensation drain hose is not bent or jammed and that there are no objects on the condensation drain hose.
3. Ensure that the condensation can run off properly.
4. Only have the power cable connected to the terminal block of the control box (underneath the protective cover) by an electrically skilled person!
5. Check whether the operation indicator light (14) lights up.
6. Set the desired fan speed using the flip switch (11).

Shut down procedure

1. Only have an electrically skilled person disconnect the power cable!
2. Remove the condensation drain hose and any residual fluid from it.
3. Clean the device, and especially the air filter, according to chapter Maintenance.
4. Store the device according to chapter Storage.

Room humidity adjustment

Set the desired humidity level via the control dial (13) of the hygrostat. The built in hygrostat switches dehumidification back on or off depending on the relative humidity.

Automatic defrost

If the room temperature is below 15 °C, the evaporator becomes covered in frost during dehumidification. The device then carries out an automatic defrost. The automatic defrost indicator light (12) is lit. The fan stops operating during automatic defrost. The duration of the defrost can vary.

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.

The device does not start:

- Check the mains connection (see chapter Technical data).
- Check the power cable for damages.
- Check the fuse (home).
- Check the preselected humidity level at the hygrostat's control dial. The humidity in the room must be above the selected range. Reduce that the selected relative 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 condensate pump functions properly. Check for abnormal vibrations and sounds. Remove external dirt.
- Check the room temperature. Check the device's permissible operating range complies with the technical data.
- Ensure that the relative humidity complies with the technical data.
- Check the preselected humidity level at the hygrostat's control dial. The humidity in the room must be above the selected range. Reduce that the selected relative 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 mounted horizontally.

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). If necessary, clean the interior of the device using compressed air.

Your device still does 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 condensate pump, condensation tray and/or condenser dryer		X				
check air inlets and outlets for dirt and foreign objects and clean if necessary	X			X		
clean housing		X				X
visually check the inside of the device for dirt		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 the inside of the device for dirt																
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 power cable with wet or damp hands.
2. Prior to any work, have an electrically skilled person disconnect the power cable!



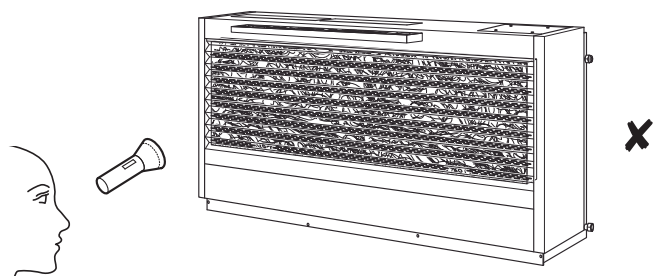
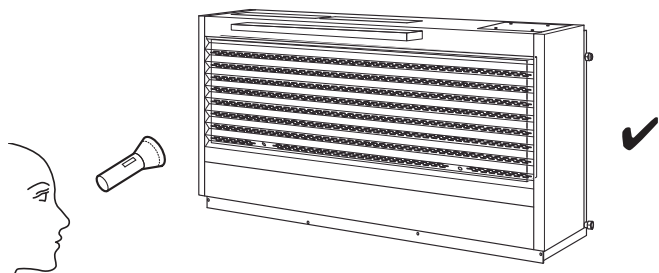
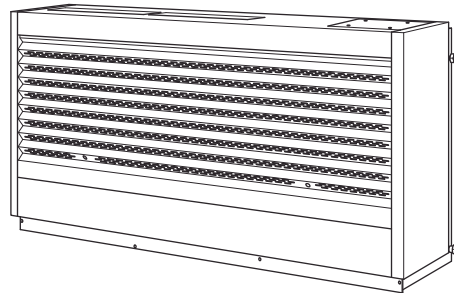
Maintenance tasks at the electrical equipment or the air-conditioning technology must only be carried out by specialist companies for cooling and air-conditioning or by TROTEC®.

Visual check for dirt in the inside of the device

1. Shine a torch through the opening of the device.
2. Check the inside of the device for dirt.
3. If you can detect a thick layer of dust, proceed as follows:
 - Remove the protective housing.
 - Clean the device's interior with a lint-free, soft cloth.
 - Put the protective housing back on.

Cleaning the housing and air inlets

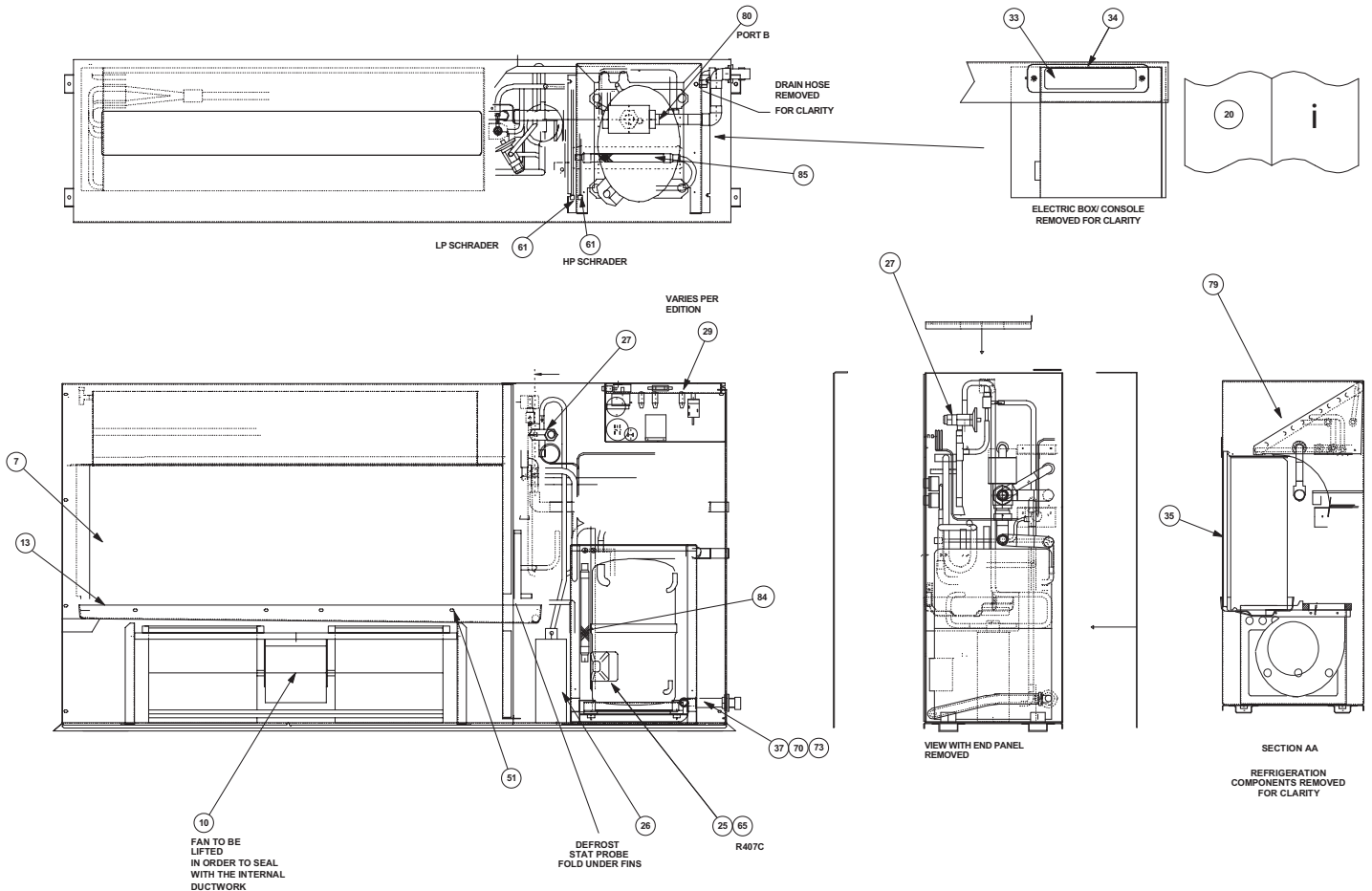
1. Use a soft, lint-free cloth for cleaning.
2. Dampen the cloth with clean water. Do not use sprays, solvents, alcohol-based or abrasive cleaners to dampen the cloth.



Overview of spare parts and spare parts list – DH 75/110 AX/BX

Note!

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

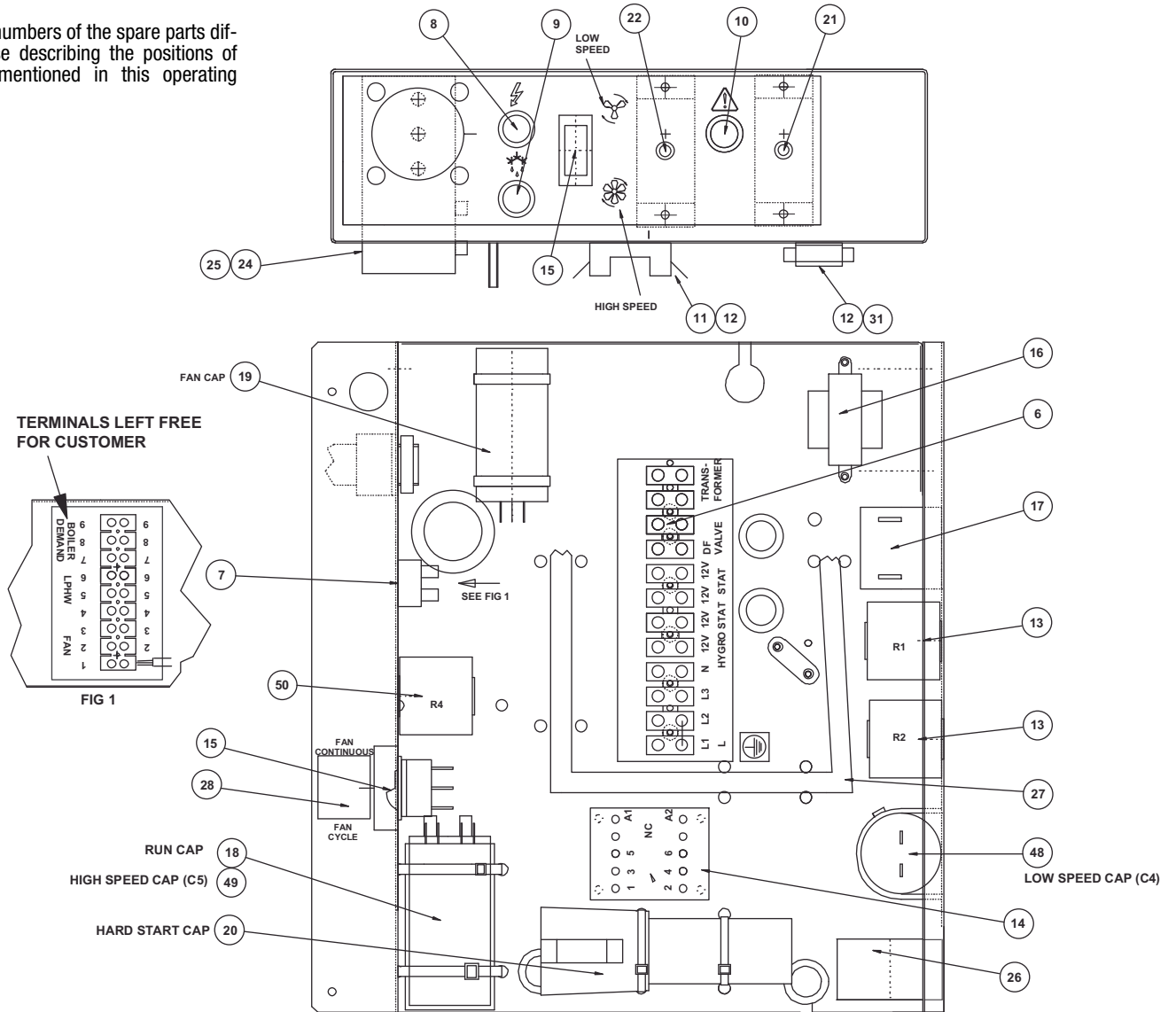


No.	Spare part	No.	Spare part
7	coil assembly	37	pipe flexible clear PVC 16 bore
10	fan assembly	51	clip U nut No. 8 screw
13	drip tray	61	Schrader valve
20	instruction manual	65	refrigerant
25	compressor	70	coupler bulkhead 15 mm brass
26	receiver/drier	73	clip
27	TEV INE 2GA	79	coil LPHW (only LPHW model)
29	electric box assembly	80	motorised valve 3 port (only LPHW model)
33	console cover	84	anaconda 1/2 anti vibration
34	gasket console cover	85	anaconda 5/8 anti vibration
35	filter (spare requires D229650 X4)		

Overview of spare parts and spare parts list – DH 75 AX – electrical equipment

Note!

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

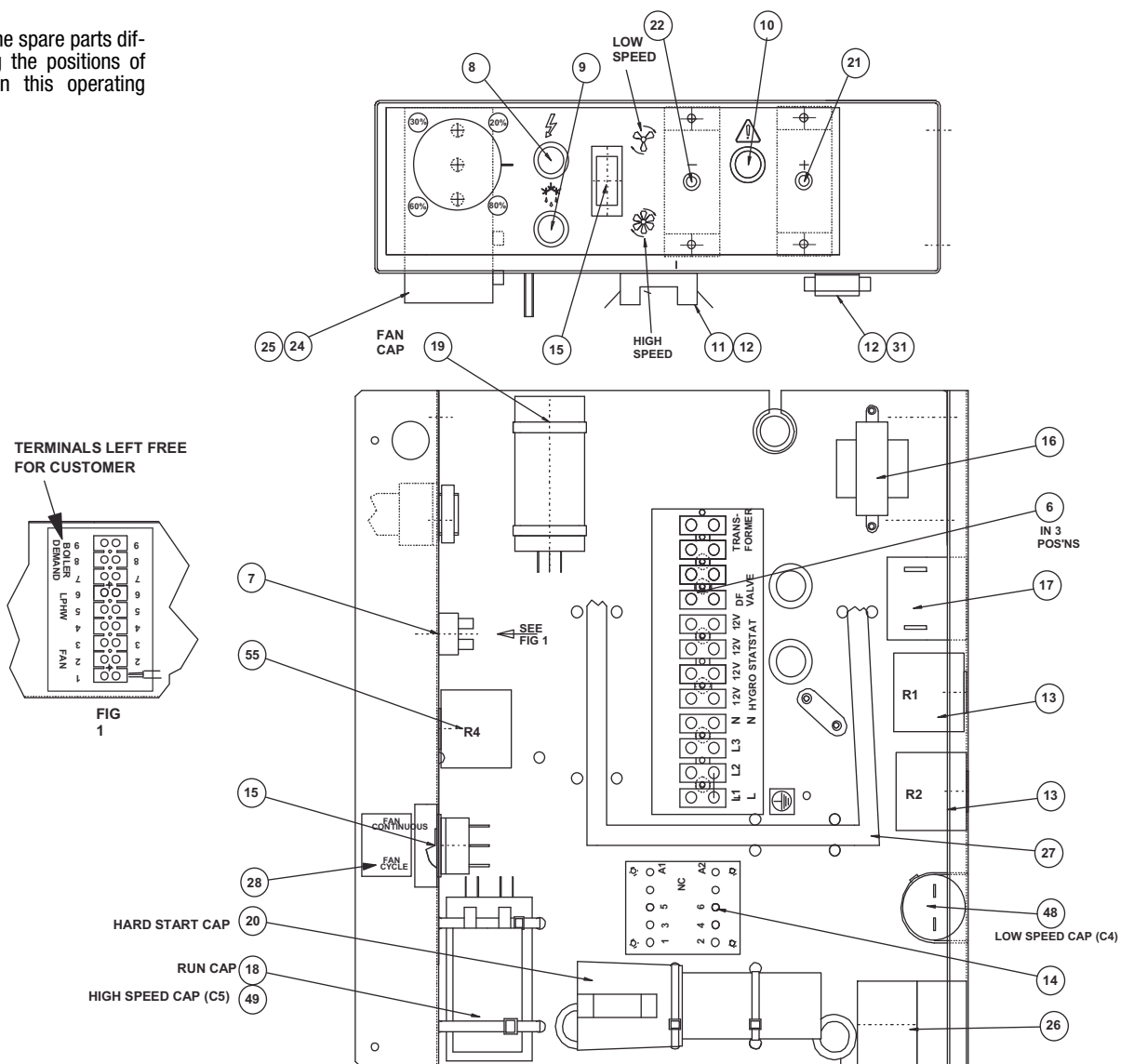


No.	Spare part	No.	Spare part
6	terminal block, 4 way, 16 A	19	run cap 4 µF
7	terminal block, 9 way, 10 A	20	capacitor hard start
8	pilot light red 240 V	21	high-pressure switch (400 psi)
9	pilot light clear 240 V	22	low-pressure switch manual reset
10	pilot light amber 240 V	24	humidistat
11	fuse holder	25	control knob
12	fuse 3A	26	defrost control stat
13	relay 25 V c/o 12 V coil	27	loom assembly
14	mini contactor 3 pole + AUX 230 V	28	label rocker switch
15	rocker switch 1 pole c/o	31	fuse clip
16	transformer 12 V 6 VA	48	capacitor 9 µF, 450 V, 50/60 Hz
17	delay timer 9 minutes	49	capacitor 10 µF, 450 V, 50/60 Hz
18	capacitor 30 µF, 440 V, 50/60 Hz	50	relay c/o 2 pole, 25 A, 230 V AC coil

Overview of spare parts and spare parts list – DH 110 AX – electrical equipment

Note!

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

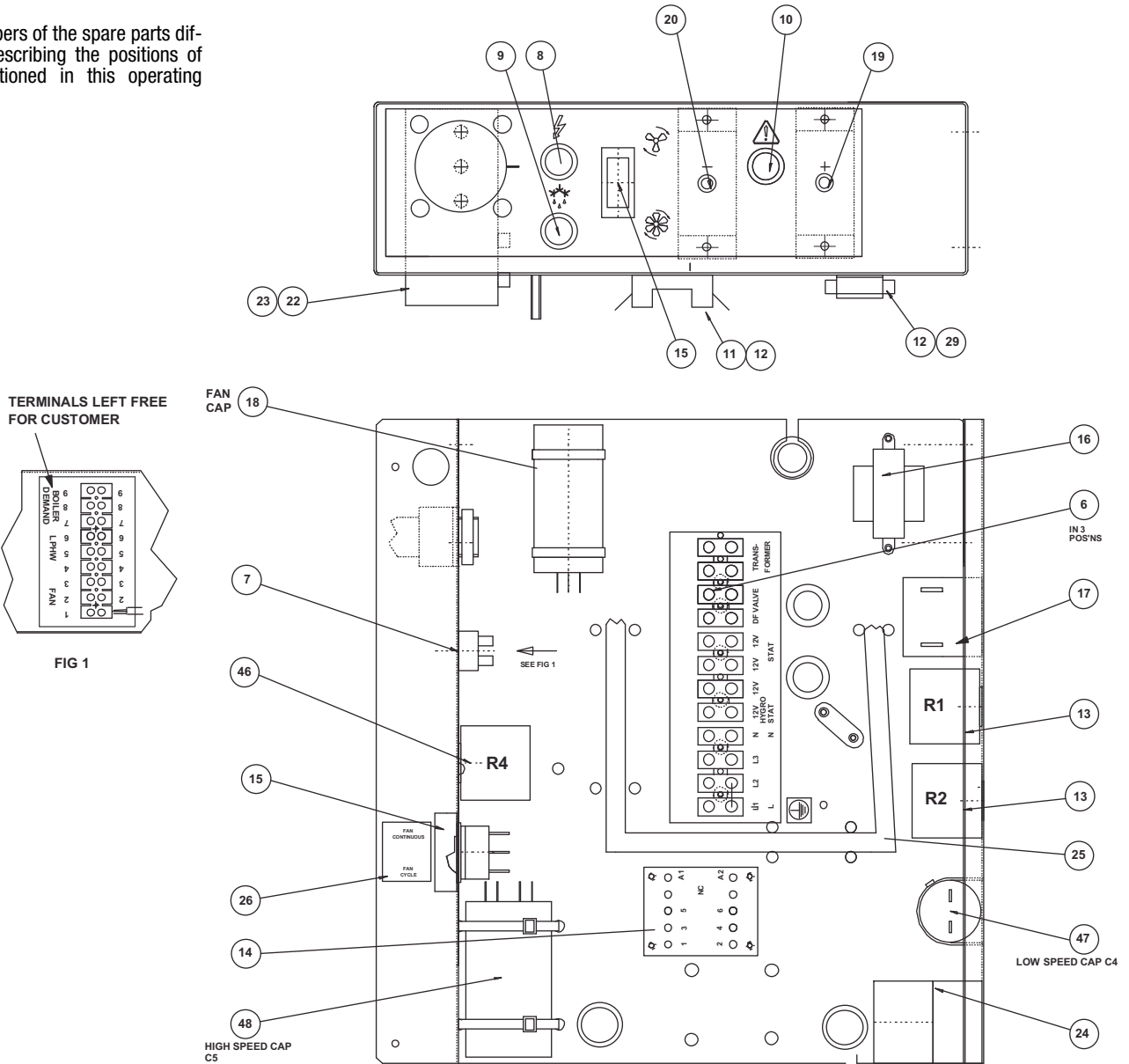


No.	Spare part	No.	Spare part
6	terminal block, 4 way, 16 A	19	capacitor 5 µF, 440 V, 60 Hz
7	terminal block, 9 way, 10 A	20	capacitor hard start
8	pilot light red 240 V	21	high-pressure switch (400 psi)
9	pilot light clear 240 V	22	low-pressure switch manual reset
10	pilot light amber 240 V	24	humidistat
11	fuse holder	25	control knob
12	fuse 3A	26	defrost control stat
13	relay 25 V c/o 12 V coil	27	loom assembly
14	mini contactor 3 pole + AUX 230 V	28	label rocker switch
15	rocker switch 1 pole c/o	31	fuse clip
16	transformer 12 V 6 VA	48	run/fan capacitor 11 µF, 450 V, 50/60 Hz
17	delay timer 9 minutes	49	run/fan capacitor 12 µF, 450 V, 50/60 Hz
18	capacitor 35 µF, 440 V, 50/60 Hz	50	relay c/o 2 pole, 25 A, 230 V AC coil

Overview of spare parts and spare parts list – DH 110 BX – 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.	Spare part	No.	Spare part
6	terminal block, 4 way, 16 A	19	high-pressure switch (400 psi)
7	terminal block, 9 way, 10 A	20	low-pressure switch manual reset
8	pilot light red 240 V	22	humidistat
9	pilot light clear 240 V	23	control knob
10	pilot light amber 240 V	24	defrost control stat
11	fuse holder	25	loom assembly
12	fuse 3A	26	label rocker switch
13	relay 25 V c/o 12 V coil	29	fuse clip
14	mini contactor 3 pole + AUX 230 V	46	relay c/o 2 pole, 25 A, 230 V AC coil
15	rocker switch 1 pole c/o	47	run/fan capacitor 11 µF, 450 V, 50/60 Hz
16	transformer 12 V 6 VA	48	run/fan capacitor 12 µF, 450 V, 50/60 Hz
17	delay timer 9 minutes		
18	capacitor 5 µF, 440 V, 60 Hz		

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 cooling agent (see chapter Technical Data). Dispose of the cooling agent/oil mixture appropriately and according to the national regulations.

Declaration of conformity

in accordance with the EC Low Voltage Directive 2006/95/EC, Annex III, Section B and the EC Directive 2004/108/EC about electromagnetic compatibility.

Herewith, we declare that the condenser dryer DH 75/110 AX/BX 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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