NORDMANN
ENGINEERING

Nordmann AT4 D

Steam generator

MOUNTING INSTRUCTIONS

2559435-E EN 2303

Thank you for choosing Nordmann

Installation date (MM/DD/YYYY):
Commissioning date (MM/DD/YYYY):
Site:
Model:
Serial number:

Contents

1 Introduction

1.1 To the very beginning

We thank you for having purchased the **steam generator Nordmann AT4 D**.

The steam generator Nordmann AT4 D incorporates the latest technical advances and meets all recognized safety standards. Nevertheless, improper use of the Nordmann AT4 D may result in danger to the user or third parties and/or impairment of material assets.

To ensure a safe, proper, and economical operation of the steam generator Nordmann AT4 D, please observe and comply with all information and safety instructions contained in the present mounting instructions.

If you have questions, which are not or insufficiently answered in this documentation, please contact your Nordmann supplier. They will be glad to assist you.

1.2 Notes on the mounting instructions

Limitation

The subject of these mounting instructions is the steam generator Nordmann AT4 D. The various accessories are only described insofar as this is necessary for proper operation of the equipment. Further information on accessories can be obtained in the respective instructions.

These mounting instructions are restricted to the **installation** of the steam generator Nordmann AT4 D and is meant for **well trained personnel being sufficiently qualified for their respective work**.

These mounting instructions are supplemented by various separate items of documentation (operating instructions, spare parts list, manuals for accessories, etc.). Where necessary, appropriate cross-references are made to these publications in the present documentation.

Explanation of the symbols used in this manual

CAUTION!

The catchword “CAUTION” designates notes in this documentation that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.

WARNING!

The catchword “WARNING” used in conjunction with the general caution symbol designates safety and danger notes in this documentation that, if neglected, may cause to **injury to persons**.

DANGER!

The catchword “DANGER” used in conjunction with the general caution symbol designates safety and danger notes in this documentation that, if neglected, may lead to **severe injury or even death of persons**.

Safekeeping

Please safeguard these mounting instructions in a safe place, where it can be immediately accessed. If the equipment changes hands, the documentation should be passed on to the new operator.

If the documentation gets mislaid, please contact your Nordmann supplier.

Language versions

The present mounting instructions are available in various languages. Please contact your Nordmann supplier for information.

Copyright protection

2 For your safety

General

Every person working with the Nordmann AT4 D must have read and understood the present mounting instructions before carrying out any installation work.
Knowing and understanding the contents of the mounting instructions is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty installation, and to install and operate the unit safely and correctly.

All ideograms, signs and markings applied to the unit must be observed and kept in readable state.

Qualification of personnel

All actions described in the present mounting instructions must be carried out only by **well trained and sufficiently qualified personnel authorised by the owner**.
For safety and warranty reasons any action beyond the scope of this manuals must be carried out only by qualified personnel authorised by the manufacturer.

It is assumed that all persons working with the Nordmann AT4 D are familiar and comply with the appropriate regulations on work safety and the prevention of accidents.

Intended use

The steam generator Nordmann AT4 D **is intended exclusively for generation of steam for a steam bath within the specified operating conditions** (see chapter 6 “Product specifications”). Any other type of application without the express written consent of the manufacturer is considered as not conforming with the intended purpose and may lead to the Nordmann AT4 D becoming dangerous.
Operation of the equipment in the intended manner requires **that all the information in these instructions is observed (in particular the safety instructions)**.

Danger that may arise from the unit:

DANGER!
Danger of electric hazard!

The Nordmann AT4 D is mains powered. One may get in touch with live parts when the unit is open. Touching live parts may cause severe injury or danger to life.

Prevention: The Nordmann AT4 D must be connected to the mains only after all mounting and installation work has been completed, all installations have been checked for correct workmanship and the covers has been relocated properly.

Behaviour in case of danger

All persons working with the Nordmann AT4 D are obliged to report any alterations to the unit that may affect safety to the owner without delay and to **secure such a unit against accidental power-up**.

Prohibited modifications to the unit

No modifications must be undertaken on the Nordmann AT4 D without the express written consent of the manufacturer.

For the replacement of defective components use exclusively **original accessories and spare parts** available from your Nordmann supplier.

3 Product Overview

3.1 Models overview

Steam generators Nordmann AT4 D are available with **different heating voltages** and **steam capacities ranging from 5 kg/h up to a maximum of 65 kg/h**.

Heating voltage **	Max. steam capacity in kg/h	Model Nordmann AT4 D	Unit size		
			small	medium	large
400V3 (400 V/3~/50...60 Hz)	5	534	x		
	8	834	x		
	15	1534		x	
	23	2364		x	
	32	3264			x
	45	4564			x
	65	6564			x
400V2 (400 V/2~/50...60 Hz)	5	524	x		
	8	824	x		
230V3 (230 V/3~/50...60 Hz)	5	532	x		
	8	832	x		
	15	1532		x	
	23	2362		x	
	32	3262			x
230V1 (230 V/1~/50...60 Hz)	5	522	x		
	8	822	x		

** Other heating voltages on request

Key model designation

Example:
Nordmann AT4 D 4564 400V3

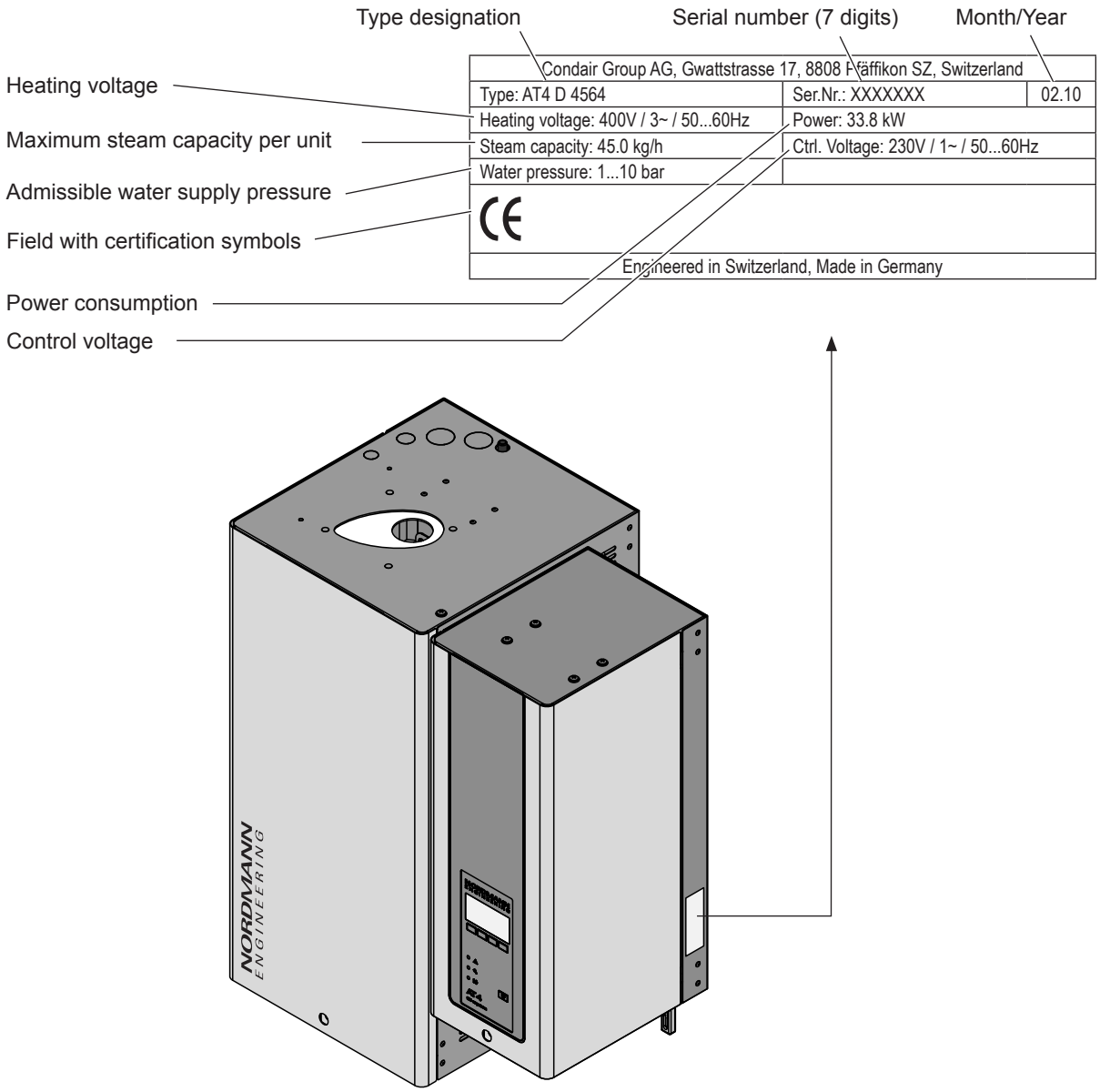
Product designation:

Unit model:

Heating voltage:
400V/3~/50...60Hz: **400V3**
400V/2~/50...60Hz: **400V2**
230V/3~/50...60Hz: **230V3**
230V/1~/50...60Hz: **230V1**

3.2 *Identification of the unit*

The identification of the unit is found on the type plate:



3.3 Steam generator construction

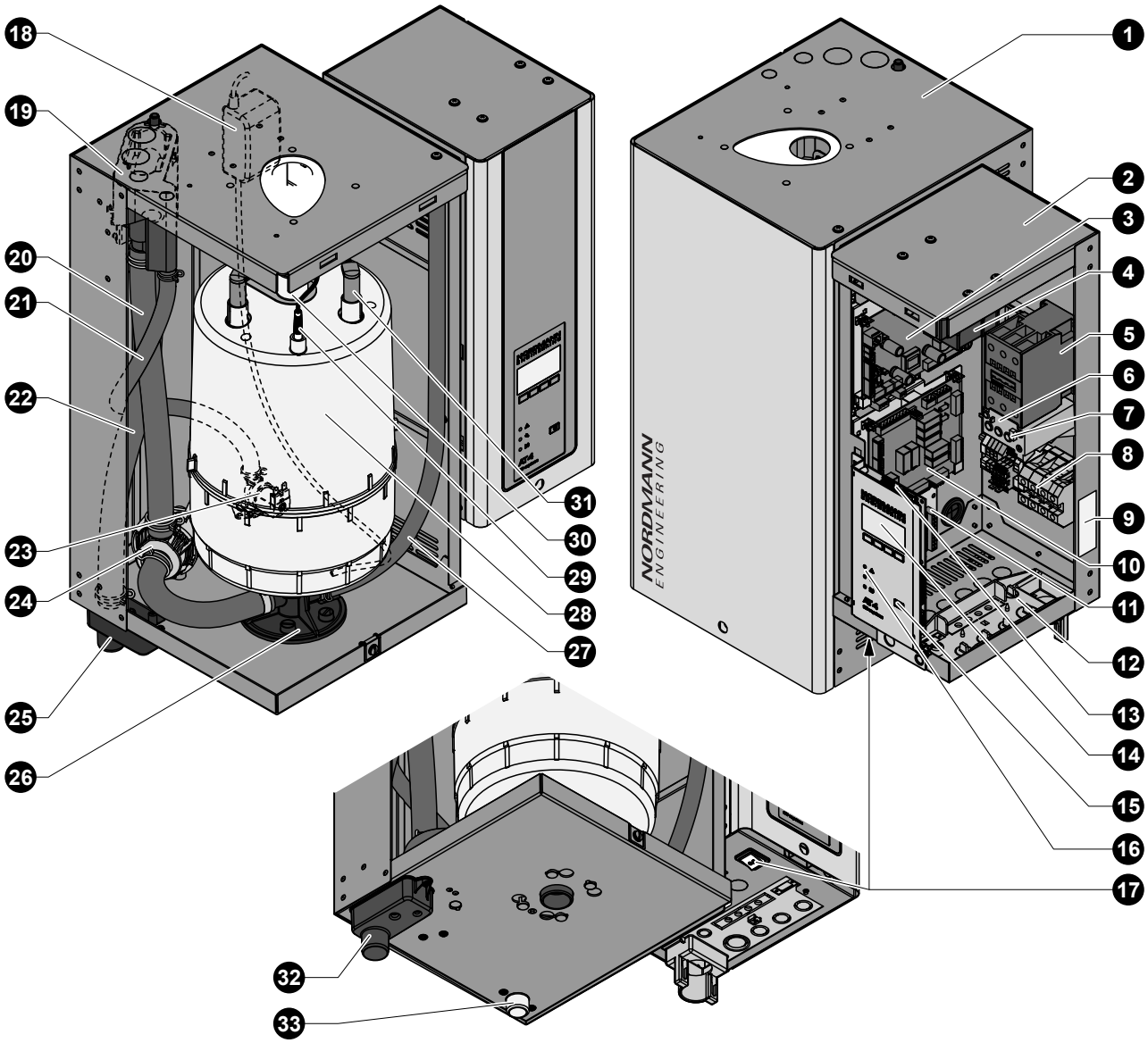
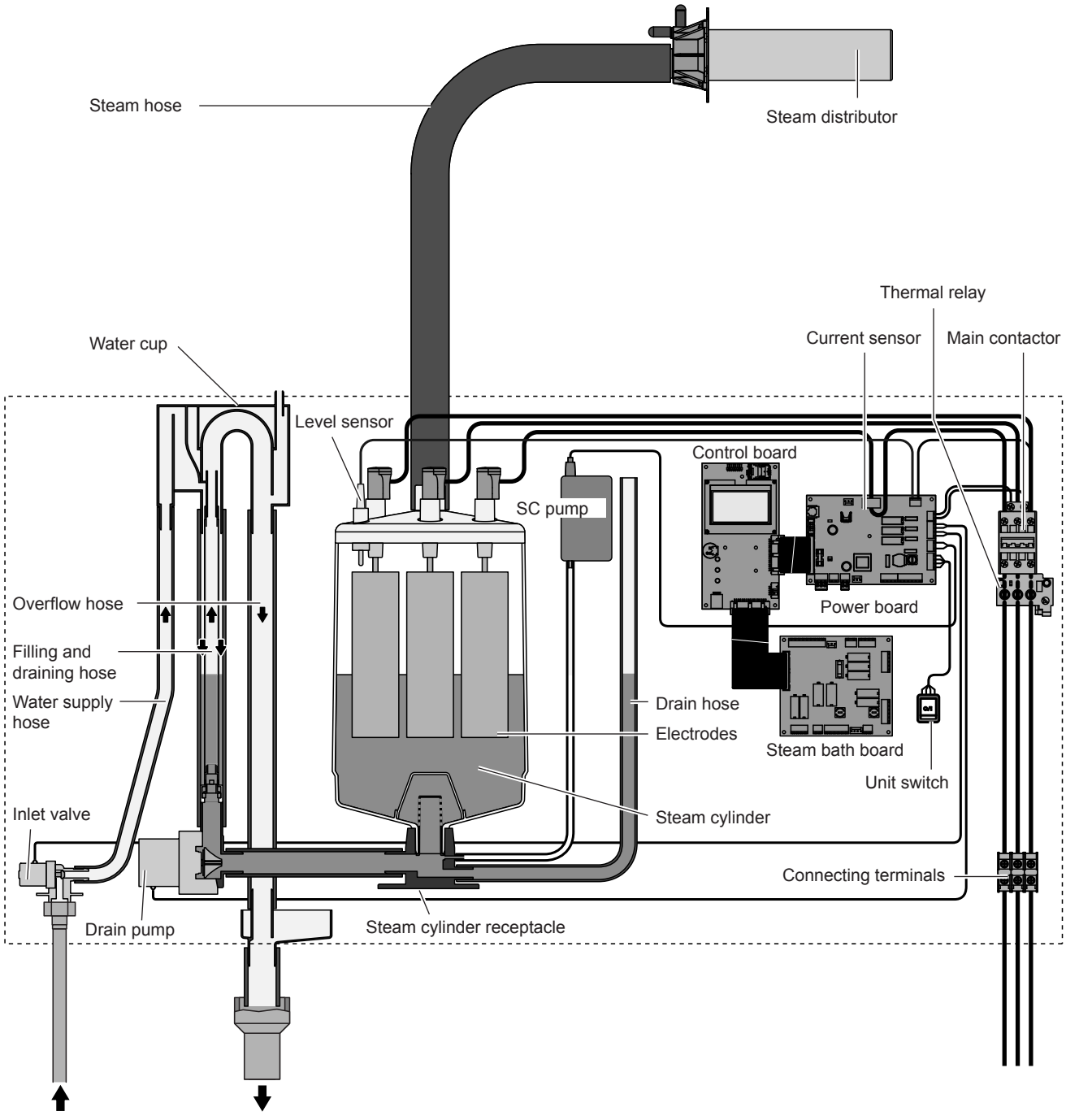


figure shows medium unit

1 Steam cylinder compartment (small, medium, large)
2 Control compartment
3 Power board
4 Transformer (Option)
5 Main contactor
6 Thermal relay
Note: on some unit models the thermal relay is not connected directly to the main contactor!
7 Reset key thermal relay
8 Connecting terminals
9 Type plate
10 Steam bath board
11 Remote operating and fault indication board (option)
12 Cable openings
13 Control board with CF Card
14 Display and control unit
15 Drain key
16 Operation status indicators
17 Unit switch
18 SC pump
19 Water cup
20 Filling and draining hose
21 Water supply hose
22 Overflow hose
23 Inlet valve
24 Drain pump
25 Drain cup
26 Steam cylinder receptacle
27 Drain hose (manual drain)
28 Steam cylinder
29 Level sensor
30 Steam outlet
31 Electrode plug
32 Drain connector
33 Water supply connector

3.4 Functional description

The steam generator Nordmann AT4 D is a pressureless steam generator that utilizes an electrode heating. The steam generator Nordmann AT4 D is designed for steam generation for steam baths.



Steam generation

Any time steam is requested, the electrodes are supplied with voltage via main contactor. Simultaneously, the inlet valve opens and water enters the steam cylinder from the bottom via water cup and supply line. As soon as the electrodes come in contact with the water, current begins to flow between the electrodes, eventually heating and evaporating the water. The more the electrode surface is exposed to water, the higher is the current consumption and thus the steam capacity.

Upon reaching the requested steam capacity, the inlet valve closes. If the steam generation decreases below a certain percentage of the required capacity, due to lowering of the water level (e.g. because of the evaporation process or drainage), the inlet valve opens until the required capacity is available again.
If the required steam capacity is lower than the actual output, the inlet valve is closed until the desired capacity is achieved by lowering of the water level (evaporation process).

Level monitoring
A sensor provided in the steam cylinder cover detects when the water level gets too high. The moment the sensor comes in contact with water, the inlet valve closes.

Drainage
As a result of the evaporation process, the conductivity of the water increases due to an escalating mineral concentration. Eventually, an inadmissibly high current consumption would take place if this concentration process were permitted to continue. To prevent this concentration from reaching a value, unsuitably high for the operation, a certain amount of water is periodically drained from the cylinder and replaced by fresh water.

Lime management

The interval controlled SC pump blows air into the steam cylinder. Thus keeping the solved minerals in the water in motion as a result they are discharged with the automatic drain cycles.

Maximum current monitoring

The thermal relay monitors the current flow to the electrodes. If the current exceeds a preset value the thermal relay triggers and interrupts the control voltage supply whereby the Nordmann AT4 D is switched off.
When the thermal relay has tiggered it can be reset after a certain period of time via the reset key.

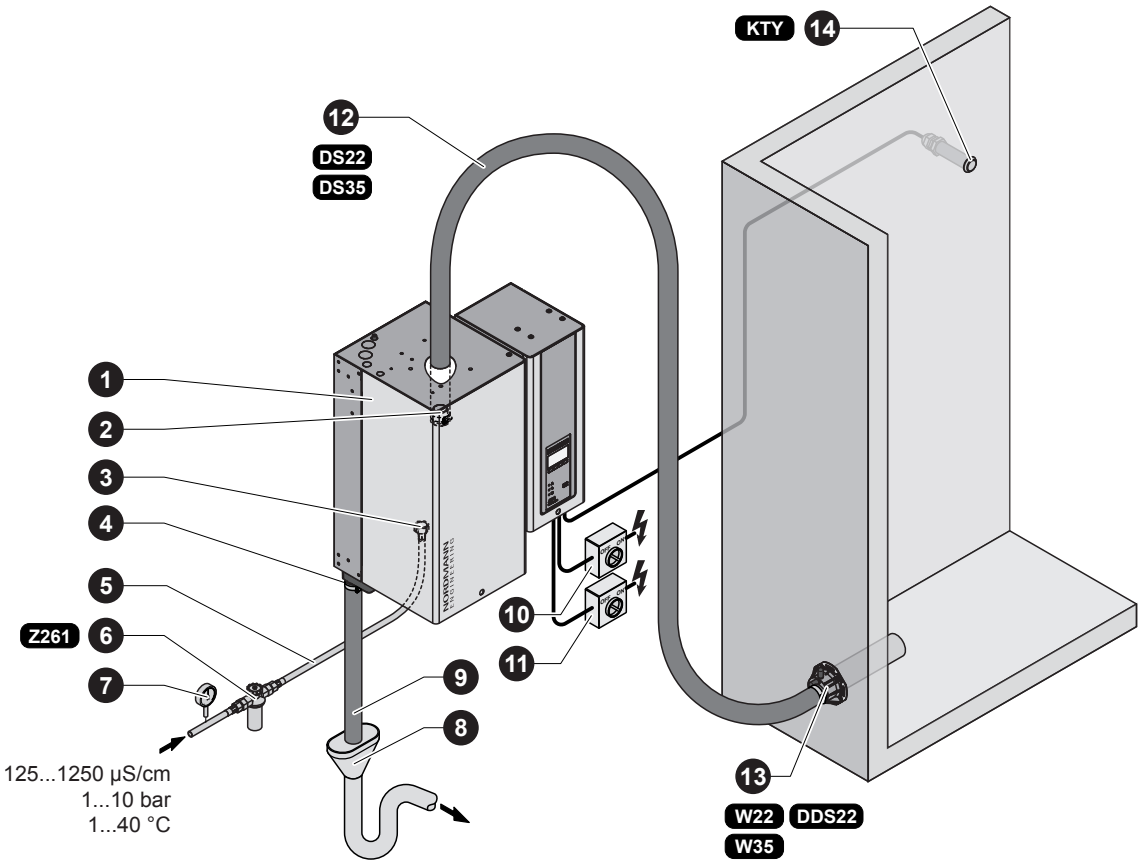
Control steam production

The steam production is controlled steplessly (continuous control) by the KTY temperature sensor and the integrated continuous controller.

Steam bath control

The control of the steam bath components (light, fans, fragrance pumps, bench heating, etc.) is established via the integrated steam bath board.

3.5 Humidification system overview



1 Steam generator
2 Steam connector
3 Water drain connector
4 Water supply connector
5 Water connection hose G 3/4"- G 3/8" (included in the delivery)
6 Filter valve (accessory “Z261”)
7 Manometer (installation recommended)
8 Funnel with siphon (building side)
9 Water drain hose (included in the delivery)
10 Service switch heating voltage supply (building side)
11 Service switch control voltage supply (building side)
12 Steam hose (accessory “DS22”/“DS35”)
13 Steam distributor (accessory “W..”/“DDS22”)
14 Temperature sensor (accessory “KTY”)

3.6 Options

	Nordmann AT4 D...						
	522 524 532 534	822 824 832 834	1532 1534	2362 2364	3262 3264	4564	6564
Steam hose connector with condensate trap	1xCT22		1xCT35			2xCT35	
Cable glands	CG						
Internal control voltage supply (for mains supply **with neutral lead**)	1xS-CVI			1xM-CVI			1xL-CVI
@-Link AT4 D Gateway to connect the Nordmann AT4 D to a building management system. Two versions are available: BACnet/IP or LonWorks.	Configuration according to separate documentation						

	Nordmann AT4 D... (400 V/3~/50...60 Hz)						
	534	834	1534	2364	3264	4564	6564
Steam cylinder for low water conductivity from 80 to 125 µS/cm	1x 534A-L	1x 834A-L	1x 1534A-L	1x 2364A-L	1x 3264A-L	1x 4564A-L	—

3.7 Accessories

3.7.1 Accessories overview

Accessories for water installation

	Nordmann AT4 D...						
	522 524 532 534	822 824 832 834	1532 1534	2362 2364	3262 3264	4564	6564
Filter valve	1xZ261						

Accessories for steam installation

	Nordmann AT4 D...						
	522 524 532 534	822 824 832 834	1532 1534	2362 2364	3262 3264	4564	6564
Steam distributor (up to max. 4 kg/h) (Details see chapter 3.7.2)	1xDDS22	—	—	—	—	—	—
Steam distributor (4...65 kg/h) (Details see chapter 3.7.2)	1xW22		1xW35			2xW35	
Steam hose / meter	1xDS22		1xDS35			2xDS35	
EcoTherm Insulation hose / meter	1xECT22		1xECT60			2xECT60	
Condensate hose / meter	KS10						
Condensate drain	1xCD22		1xCD35			2xCD35	
T-piece fragrance injection	1xTSD22		1xTSD35			2xTSD35	
Fragrance pump	1xFP 240V						

Accessories for operation control

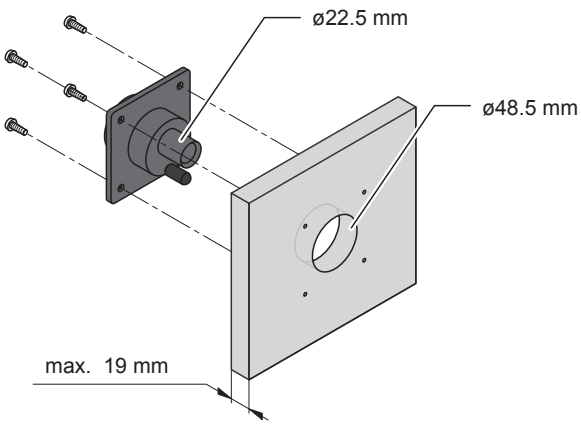
	Nordmann AT4 D...						
	522 524 532 534	**822 824 832 834**	**1532 1534**	**2362 2364**	**3262 3264**	**4564**	**6564**
Temperature sensor	**1xKTY**						
Nordmann AT4 D Remote-Terminal	1 Terminal (**RP**) for the remote control of up to 8 steam generators						
Nordmann AT4 D Touch Screen Panel	**1xTSP**						

General accessories

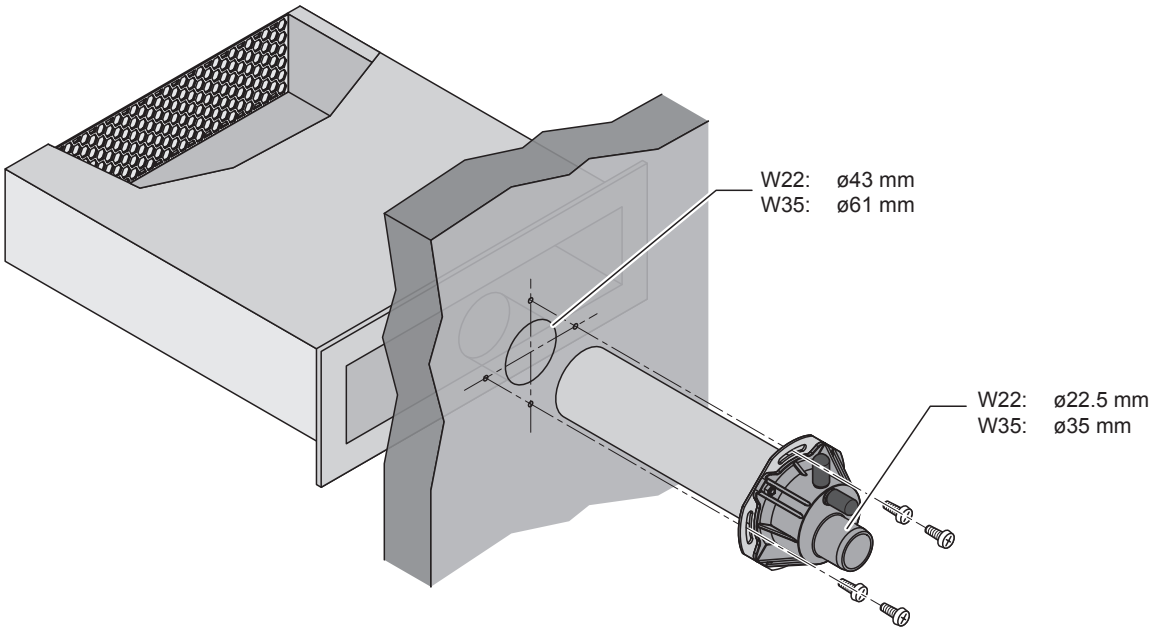
	Nordmann AT4 D...						
	522 524 532 534	**822 824 832 834**	**1532 1534**	**2362 2364**	**3262 3264**	**4564**	**6564**
All-weather protective housing	Layout according to the separate data sheet						

3.7.2 Accessory details

3.7.2.1 Steam distributor DDS22



3.7.2.2 Steam distributor W22/W35



3.8 Standard delivery

The standard delivery includes:

– Steam generator Nordmann AT4 D with water connection hose G 3/4" - G 3/8" and water drain hose ø 31/40 mm equipped with the options ordered according to chapter 3.6, fixing set, mounting instructions (this document) and operating instructions, packaged in cardboard box

Unit type	Dimensions packaging (L x W x D)	Transport weight
522, 524, 532, 534, 822, 824, 832, 834	705 mm x 505 mm x 325 mm	14 kg
1532, 1534, 2362, 2364	750 mm x 585 mm x 415 mm	21 kg
3262, 3264, 4564, 6564	770 mm x 640 mm x 420 mm	31 kg

– Ordered accessories with operating instructions according chapter 3.7, packed separately

– Spare parts list

3.9 Storing/Transportation/Packaging

Storing

Store the unit in a protected area meeting the following requirements:

– Room temperature: 1 ... 40 °C
– Room humidity: 10 ... 75 %rh

Transportation

For optimum protection always transport the unit in the original packaging.

The weight of the units with a steam capacity of more than 8 kg/h is more than 20 kg (see chapter 6.1 “Technical data”). Therefore, always transport these units with the help of another person or use an appropriate lifting device. Always place the unit on its back side.

Packaging

Keep the original packaging of the Nordmann AT4 D for later use.

In case you wish to dispose of the packaging, observe the local regulations on waste disposal. Never dispose of the packaging to the environment.

4 Notes for the planning engineer

4.1 Selecting the unit version

To select the unit version the following planning steps are required:

1. Determinating the required maximum steam capacity according chapter 4.1.1
2. Selecting the unit version from the table in chapter 4.1.2

4.1.1 Determination of the required steam capacity

The steam capacity required for a particular steam bath can be determined with the following table:

Cabin size	Required steam capacity	
	Plastic cabin	brick lined cabin
4 m^3	5 kg/h	8 kg/h
8 m^3	8 kg/h	12 kg/h
12 m^3	10 kg/h	15 kg/h
16 m^3	12 kg/h	18 kg/h
20 m^3	13 kg/h	21 kg/h
24 m^3	15 kg/h	24 kg/h
28 m^3	17 kg/h	26 kg/h
32 m^3	18 kg/h	29 kg/h
36 m^3	20 kg/h	31 kg/h
40 m^3	21 kg/h	34 kg/h
44 m^3	23 kg/h	36 kg/h
48 m^3	24 kg/h	38 kg/h
52 m^3	26 kg/h	41 kg/h
56 m^3	27 kg/h	43 kg/h
60 m^3	29 kg/h	45 kg/h

Important notes:

– The determined steam capacity based on the above table does not consider any steam loss (e.g. due to condensation in the steam hoses and the steam distributors), any heat loss of the unit as well as any absorption or release of humidity of materials located in the steam bath being humidified.
In addition, the calculated steam capacity does not consider any losses caused by the draining rate depending on the water quality as well as any losses occur if the steam generator is operated on a mains circuit with a ground fault circuit interrupter.

The total amount of losses depends on the entire system and must be taken into consideration when determinating the required steam capacity. If you have any questions regarding the calculation of the steam capacity please contact your Nordmann supplier.

4.1.2 Selecting the unit

Nordmann AT4 D **4564** **400V3**

Heating voltage **	Max. steam capacity in kg/h	Model Nordmann AT4 D	Unit size		
			small	medium	large
400V3 (400 V/3~/50...60 Hz)	5	534	x		
	8	834	x		
	15	1534		x	
	23	2364		x	
	32	3264			x
	45	4564			x
	65	6564			x
400V2 (400 V/2~/50...60 Hz)	5	524	x		
	8	824	x		
230V3 (230 V/3~/50...60 Hz)	5	532	x		
	8	832	x		
	15	1532		x	
	23	2362		x	
	32	3262			x
230V1 (230 V/1~/50...60 Hz)	5	522	x		
	8	822	x		

** Other heating voltages on request

4.2 Selecting the options an accessories

For selecting the options and accessories see chapter 3.6 and 3.7.

5 Mounting and installation work

5.1 Important notes for mounting and installation work

Qualification of personnel

All mounting and installation work must be carried out only by **well qualified personnel authorised by the owner**. It is the owner's responsibility to verify proper qualification of the personnel.

General note

Strictly observe and comply with all information given in the present mounting instructions regarding the location of the unit and the installation of water, steam and electricity.

Observe and comply with all local regulations dealing with water, steam and electrical installations.

Safety

Some installation work requires removal of the unit covers. Please note the following:

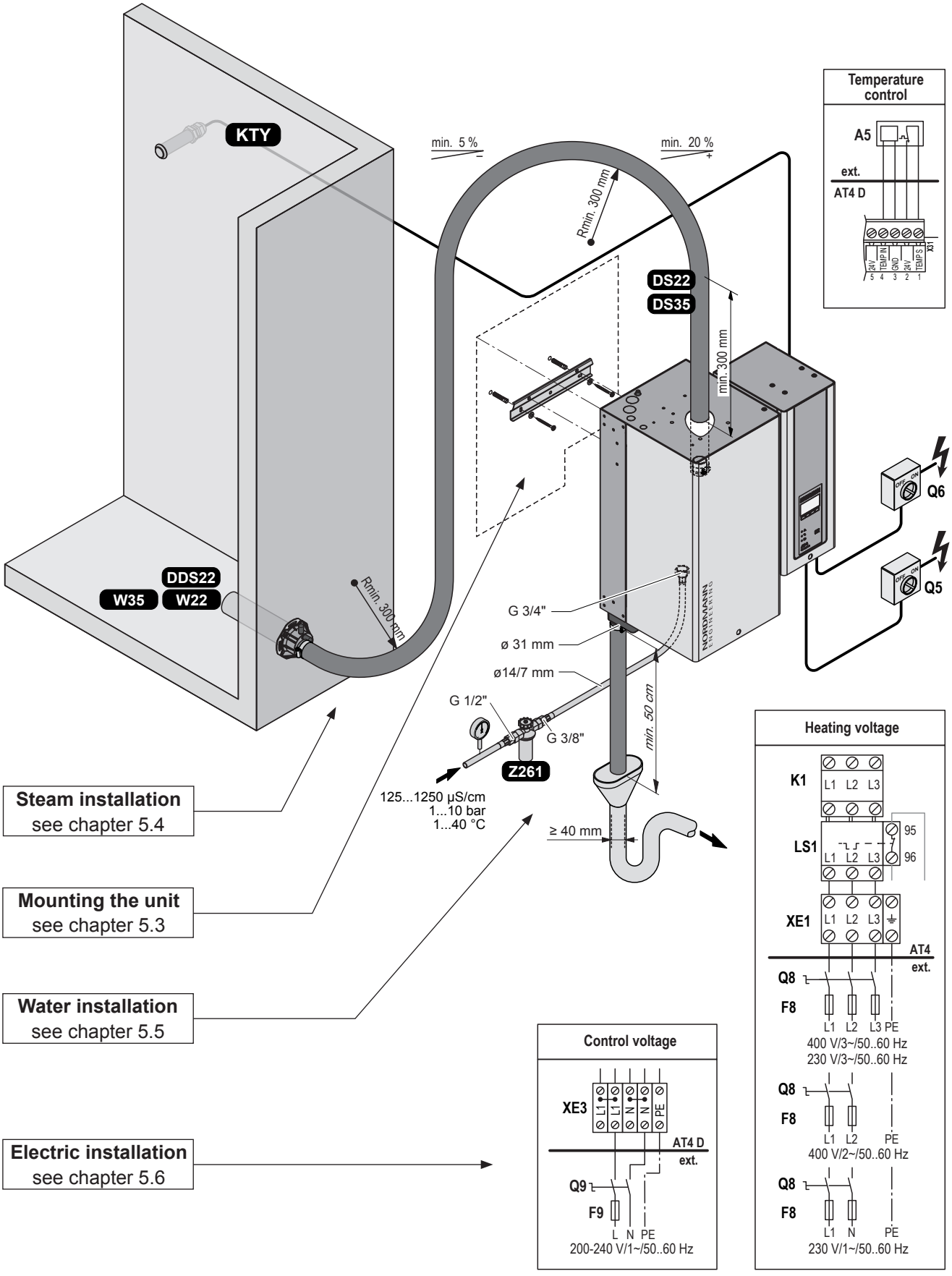
DANGER!
Danger of electric hazard!

You may get in touch with live parts when the unit is open. The steam generator must be connected to the mains only after all mounting and installation work has been completed and the cover has been relocated properly.

CAUTION!

The electronic components inside the steam generator are very sensitive to electrostatic discharge. When the unit is open for installation work, appropriate measures must be taken to protect these components against damage caused by electrostatic discharge (ESD protection).

5.2 Installation overview



Steam installation
see chapter 5.4

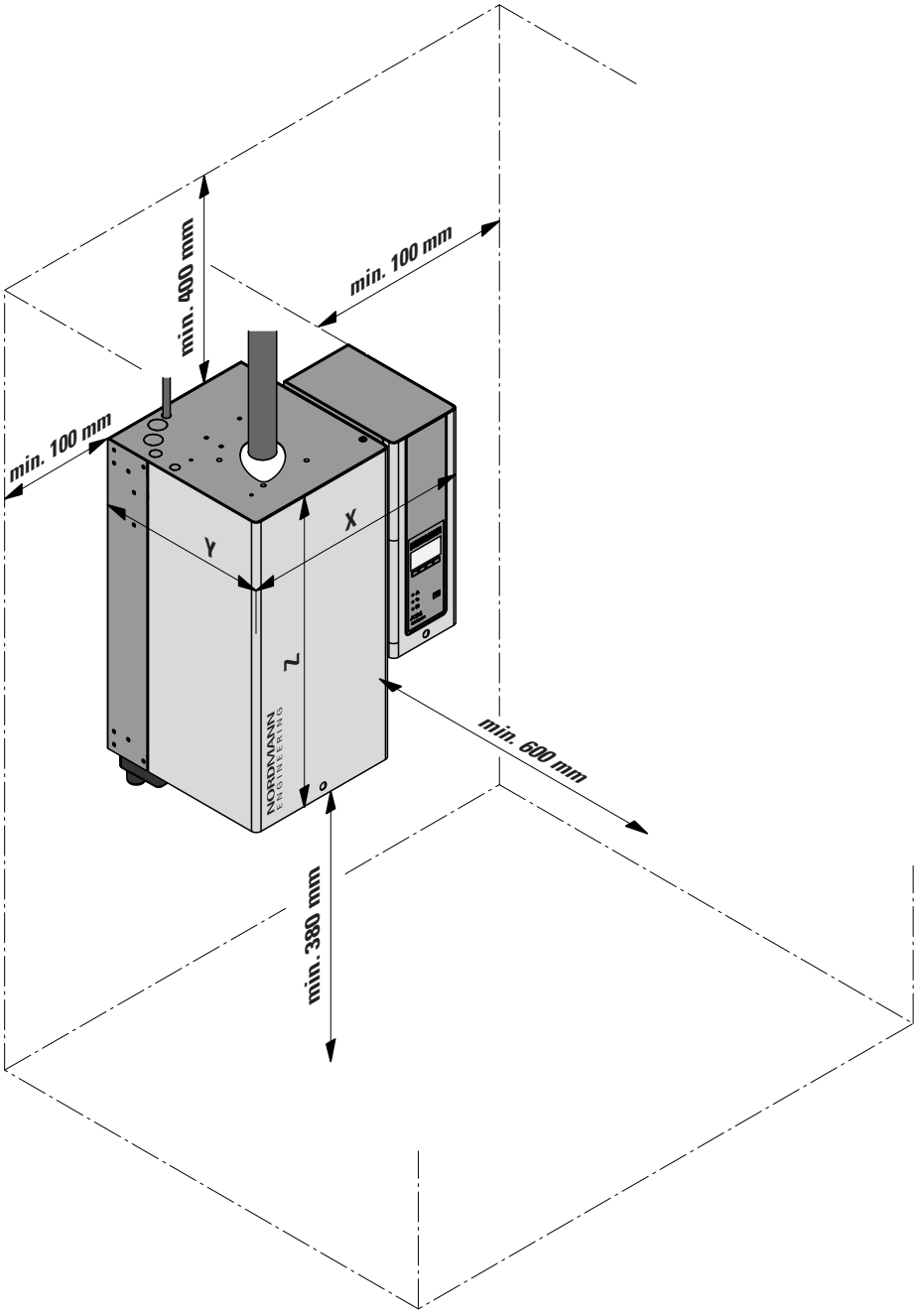
Mounting the unit
see chapter 5.3

Water installation
see chapter 5.5

Electric installation
see chapter 5.6

5.3 Mounting the unit

5.3.1 Notes on locating the unit



Nordmann AT4 D ...		522 524 532 534	822 824 832 834	1532 1534	2362 2364	3262 3264	4564	6564
Dimensions								
Housing dimensions in mm	X	428	428	508	508	563	563	563
	Y	255	255	345	345	354	354	354
	Z	575	575	620	620	640	640	640
Weights								
Net weight in kg		12	12	19	19	28	28	30
Operating weight in kg		17	17	29	29	65	65	67

The installation site of the steam generator depends largely on the location of the steam distributor (see chapter 5.4). To **ensure proper functioning** of the steam generator and to **obtain an optimal efficiency**, the following points must be considered and observed when choosing the location for the steam generator:

– Install the steam generator so that the **length of the steam** hose is kept as short as possible (**max. 4 m**) and that the **minimum bend radius (R= 300 mm)** and **up-slope (20 %)** or **down-slope (5 %)** of the steam hose is observed (see chapter 5.4.5).

– The steam generators Nordmann AT4 D are designed for wall-mounting. Make sure that the construction (wall, pillar, floor-mounted console, etc.) to which the steam generators are to be mounted, offers a **sufficiently high load-bearing capacity** (take notice of the weight information found in the dimension sand weights table above), and is suitable for the installation.

– The back panel of the Nordmann AT4 D is retaining heat during operation (max. surface temperature of the metal housing approx. 60 - 70 °C). Make sure, therefore, that the construction (wall, pillar, etc.) to which the unit is to be mounted, does not consist of heat-sensitive material.

– Install the steam generator in such a manner that it is **freely accessible** with sufficient space available for maintenance purposes (refer to the above illustration for minimum distances).

– The Nordmann AT4 D is protected according to **IP21**. Make sure the units are installed in a drip-proof location and the admissible ambient conditions are complied with.

– The steam generator Nordmann AT4 D may only be installed in rooms with a floor drain.

CAUTION!

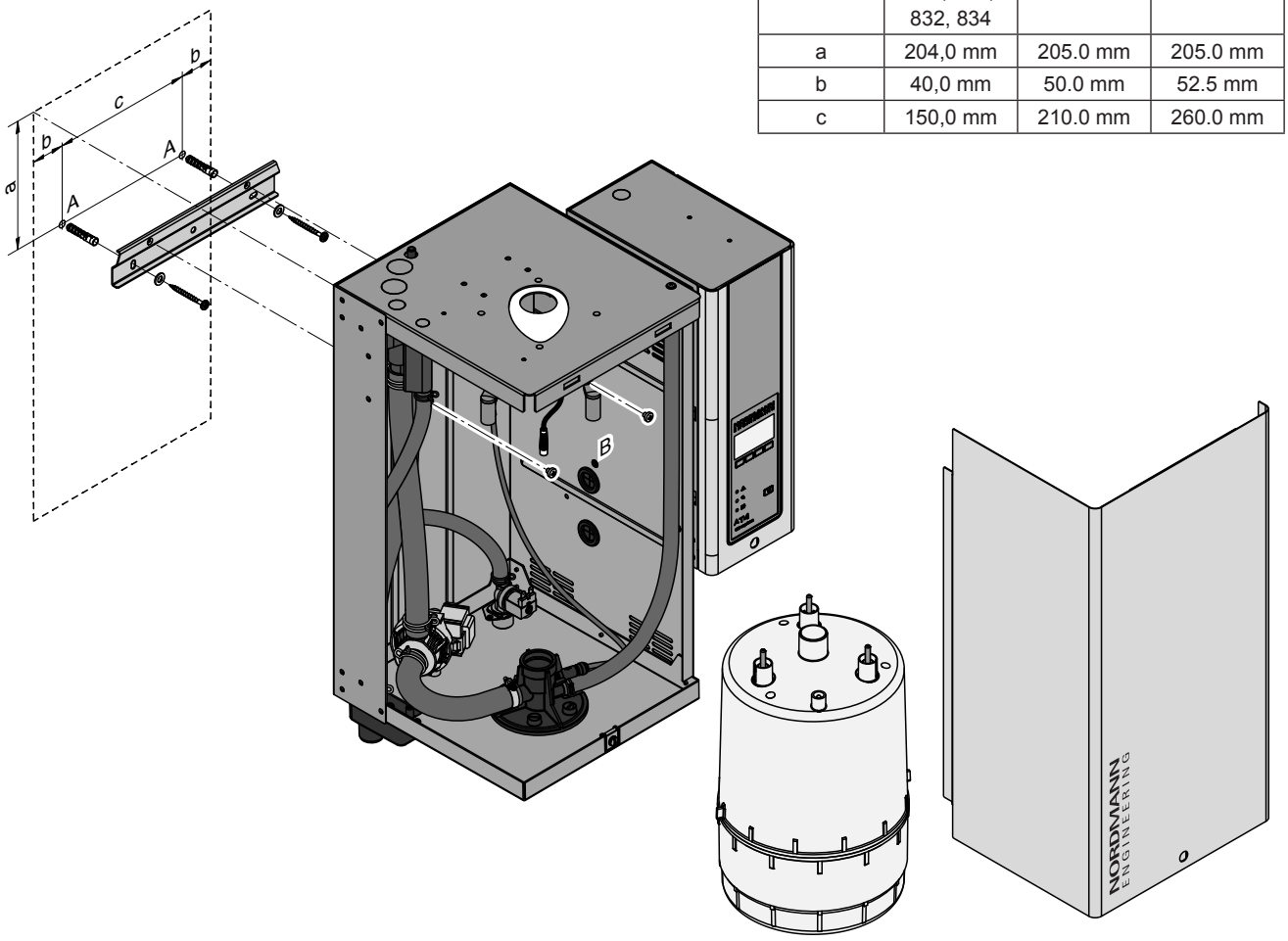
If for some reason the Nordmann AT4 D must be installed in a location without floor drain, it is mandatory to provide a leakage monitoring device to safely interrupt the water supply in case of leakage.

– When fixing the Nordmann AT4 D use **only the fixing materials supplied with the unit**. If fixing with the materials supplied is not possible in your particular case, select a method of fixing that is of similar stability.

– The Nordmann ES4 is designed for installation and operation within buildings (admissible temperature range see chapter 6.1). For outdoor operation the Nordmann AT4 D must be placed in a weather protective housing. If ambient temperatures near or below the freezing point have to be expected, the protective housing must equipped with a thermostat controlled heating of sufficient capacity. The water supply pipe must be equipped with a trace-heating and must be insulated up to the protective housing.

5.3.2 Mounting the steam generator

Dimension	Unit type		
	522, 524, 532, 534, 822, 824, 832, 834	1532, 1534, 2362, 2364	3262, 3264, 4564, 6564
a	204,0 mm	205.0 mm	205.0 mm
b	40,0 mm	50.0 mm	52.5 mm
c	150,0 mm	210.0 mm	260.0 mm



Procedure

1. Mark the attachment points “A” for the wall support at the desired position with the help of a spirit level. Then, drill holes diameter: 8 mm, depth: 40 mm.
2. Insert the supplied plastic plugs, and fix the wall support to the wall with the screws supplied. Before tightening the screws adjust wall support horizontally using a spirit level.
3. Unlock the screw of the front panel (steam side), then remove the front panel.
4. Unmount the steam cylinder (see Nordmann AT4 D operating instructions chapter 6.3.1).
5. Hang up the unit onto the wall support. Then, fix the unit to the wall support using the supplied screws “B”.
6. Remount the steam cylinder (see Nordmann AT4 D operating instructions chapter 6.3.1).
7. Reattach the front panel and secure it with the screw.

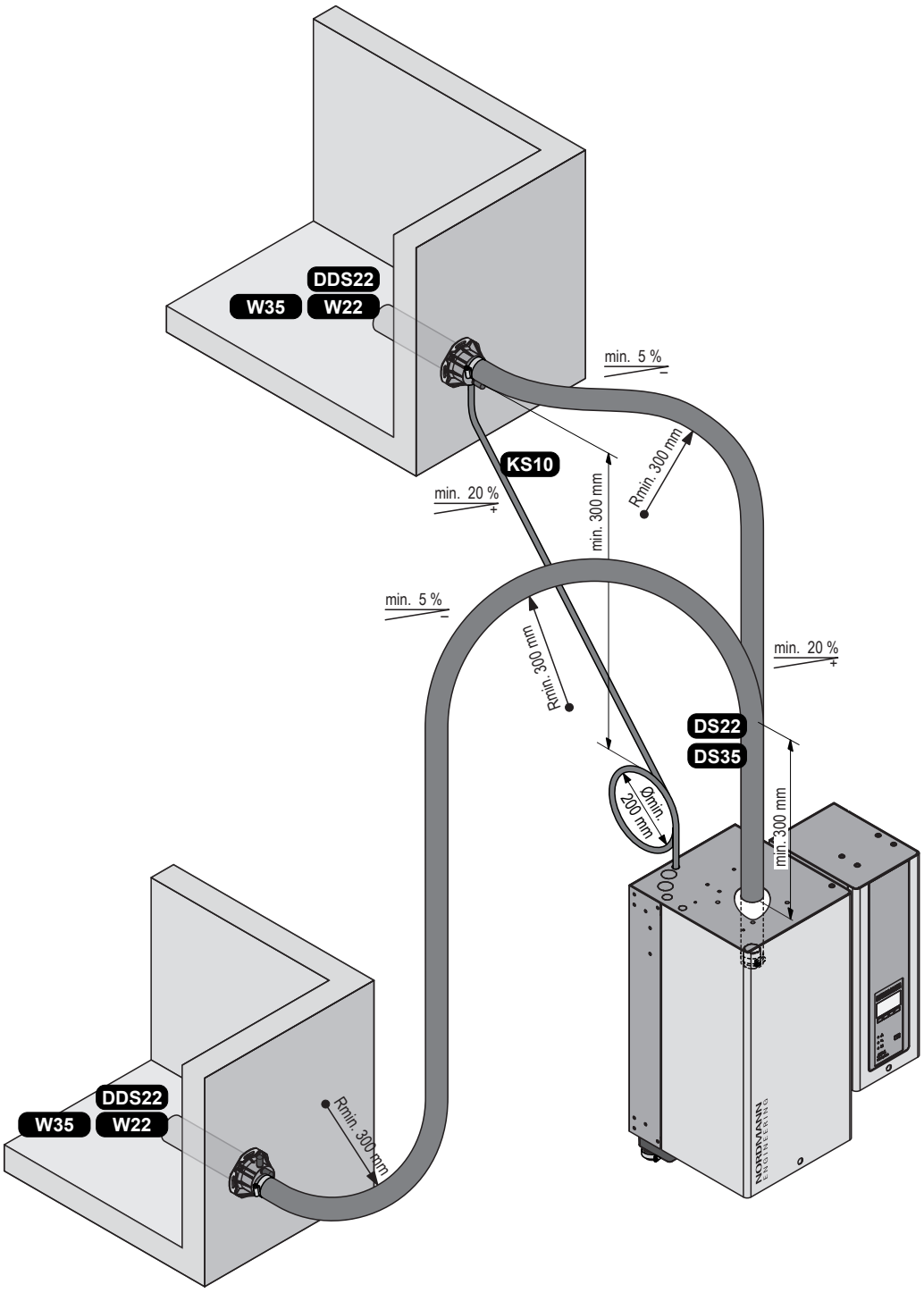
5.3.3 Inspecting the installed unit

Check the following points:

- ☐ Is the unit installed in the correct place (see chapter 5.3.1)?
- ☐ Is the supporting surface stable enough?
- ☐ Is the unit correctly aligned, vertically and horizontally?
- ☐ Is the unit properly secured (see chapter 5.3.2)?
- ☐ Has the front panel of the unit been relocated and correctly fixed with the screw?

5.4 Steam installation

5.4.1 Overview steam installation



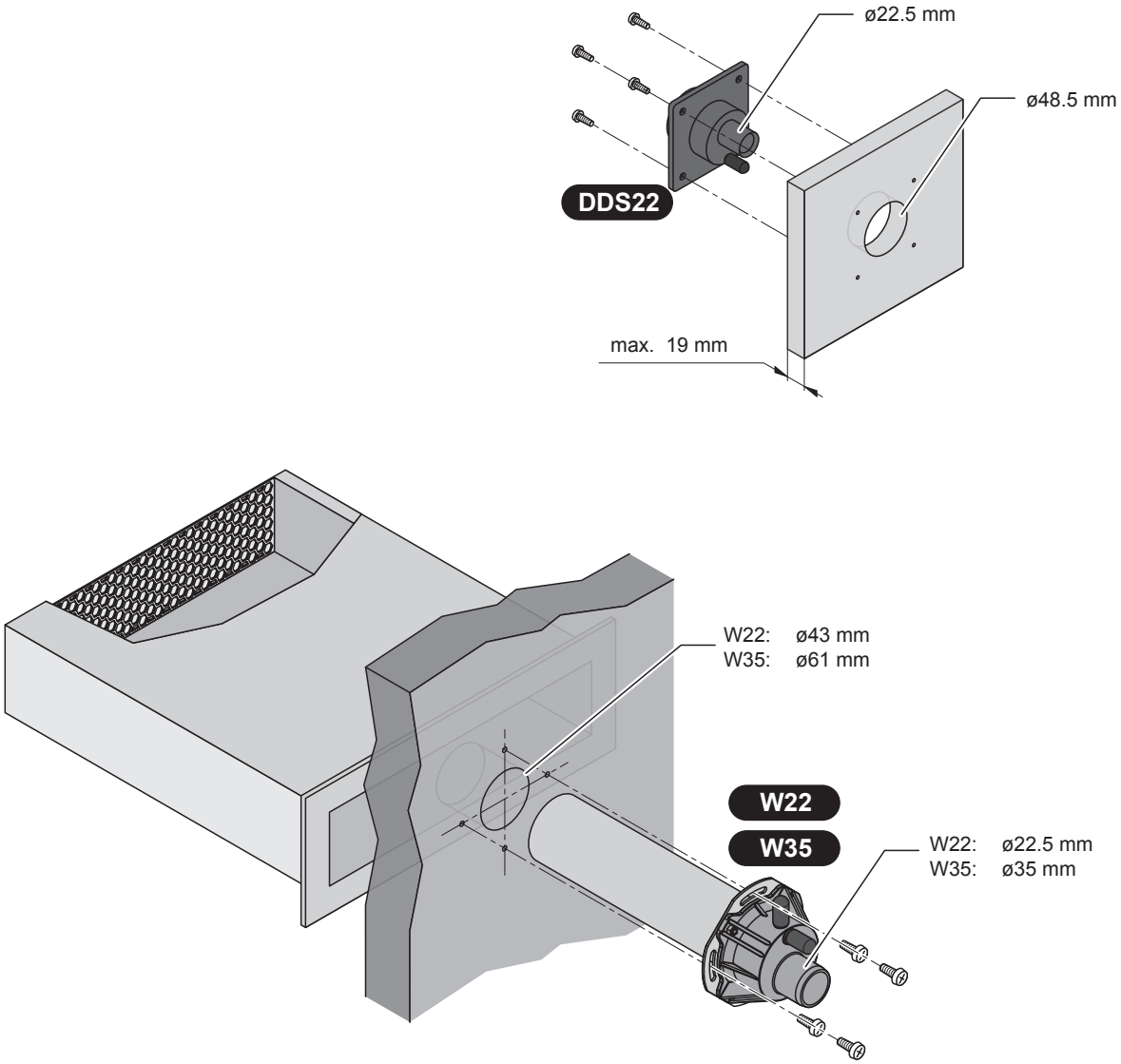
5.4.2 *Positioning/mounting the steam distributor*

It's the responsibility of the customer to correctly position the steam distributor in the steam bath cabin.

WARNING!
Hot water vapour - Danger of scalding!

Shield the steam outlet of the steam distributor with corresponding measures to make sure steam bath users can not be burned by the steam flow.

Detailed information on the installation of steam distributors DDS... and W... can be found in the separate mounting instructions for these products.



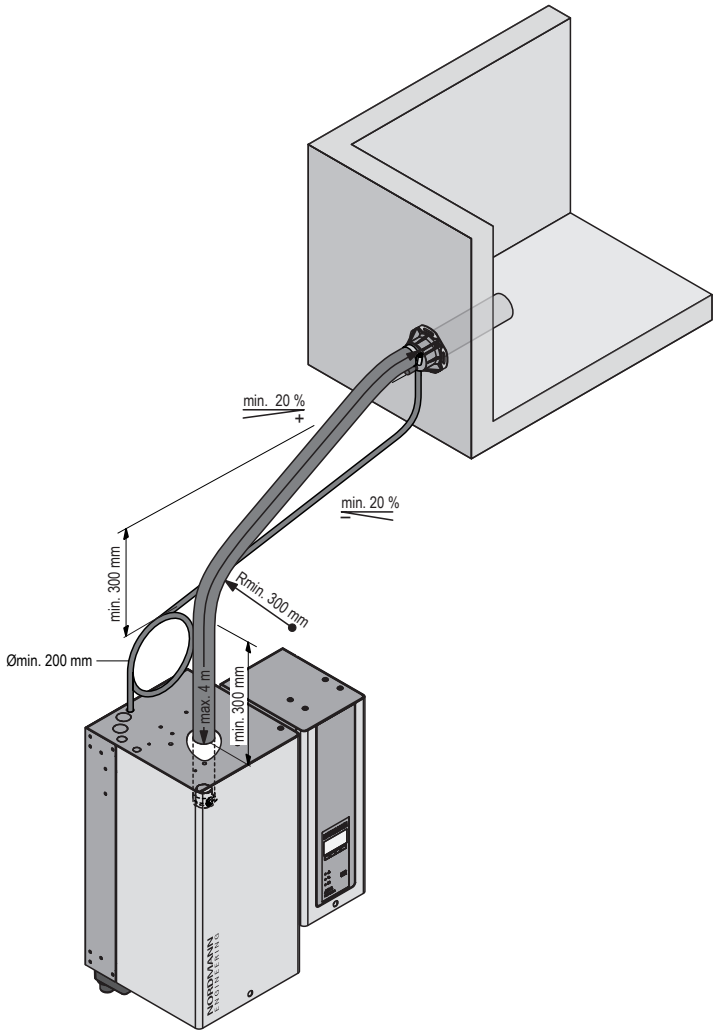
5.4.3 Installing the steam and condensate hose

Important! Use original steam and condensate hose from your Nordmann supplier exclusively. Other types of hoses can cause undesired operational malfunctions.

Instructions for the hose layout

The hose layout depends on the position of the steam distributor:

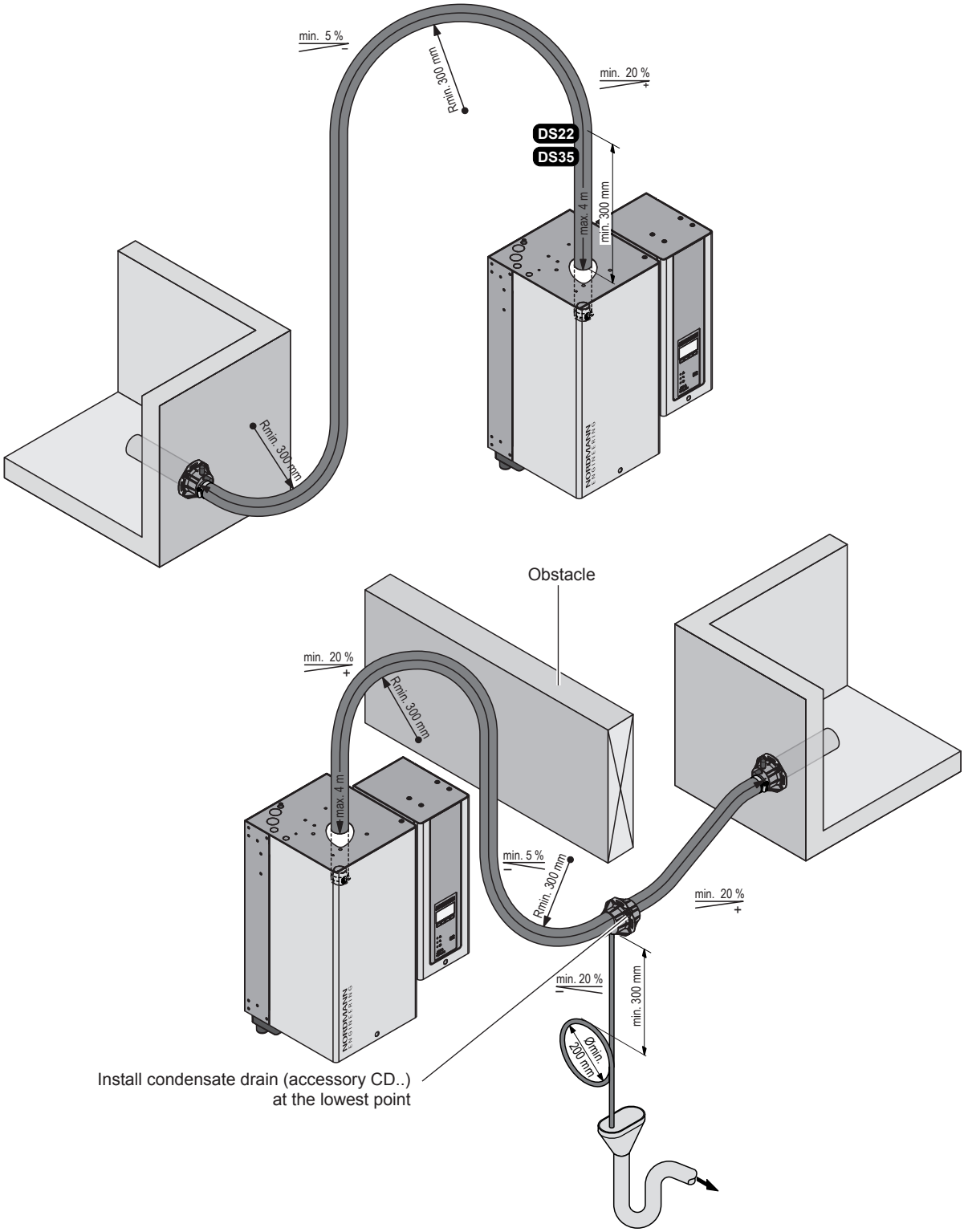
– Steam distributor is mounted **more than 500 mm above the top edge of the steam generator**:



Initially, lead the steam hose with an **upslope of at least 20% over a minimum height of 300 mm**, then lead the hose with a **minimum upslope of 20%** and/or a **minimum downslope of 5%** to the steam distributor.

The condensate hose is led down to the humidifier with a **minimum slope of 20 %**, in the form of a **siphon (min. hose bend diameter Ø200 mm)** and is to be connected to the appropriate connector on top of the unit. **Important!** Before putting the unit into operation, the siphon of the condensate hose must be filled with water.

– Steam distributor is mounted **less than 500 mm above the top edge of the steam generator**:



Initially, the steam hose is led with an **upslope of at least 20 % over a minimum height of 300 mm** above the top edge of the steam generator and then down to the steam distributor with a **minimum slope of 5 %**.

Condensate hose of the condensate drain is led down with a **minimum slope of 20 %**, in the form of a **siphon (min. hose bend diameter Ø200 mm)**, directly into a discharge funnel.
Important! Before putting the unit into operation, the siphon of the condensate hose must be filled with water.

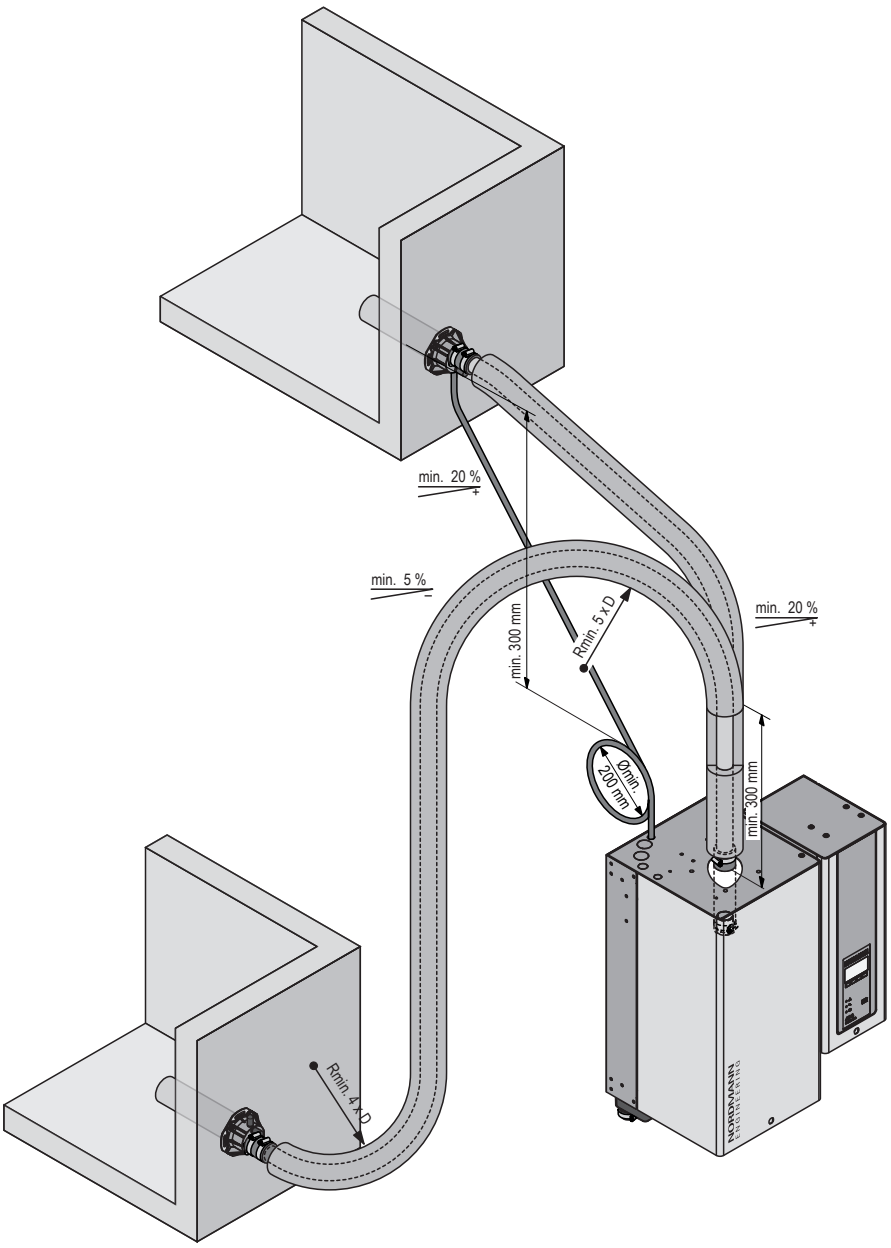
– The steam hose should be kept as short as possible (**max. 4 m**) while observing the **minimum bend radius of 300 mm**. **Important!** Allowance must be made for a **pressure loss of approx. 100 Pa** per meter steam hose.
  Note: If your particular installation exceeds the maximum steam hose length of 4 m contact your Nordmann representative. In any case, steam hoses longer than 4 m must be insulated in their entire length **(e.g. with insulation hose "EcoTherm")**.
– Reductions in the cross section such as kinks should be avoided throughout the entire length of the hose. The installation of a stop cock in the steam hose is not permissible.
– Steam hoses must be prevented from sagging (condensate pockets); if necessary, support with pipe clamps, trough, or wall brackets, or install a condensate drain in the steam hose.
– **Important!** When deciding on the length and layout of the hose, it should be noted that the steam hose may become somewhat shorter with progressive ageing.
– **Important note regarding the IP protection class**: to meet the IP21 protection class the steam hose lead through on top of the housing must be sealed with commercially available, heat resistant sealant.

Securing the hose

The steam hose must be secured to the steam distributor and steam generator steam outlet by means of **hose clamps**.
Caution! Do not overtighten the hose clamp on the steam connector of the steam generator.

Steam line with fixed piping

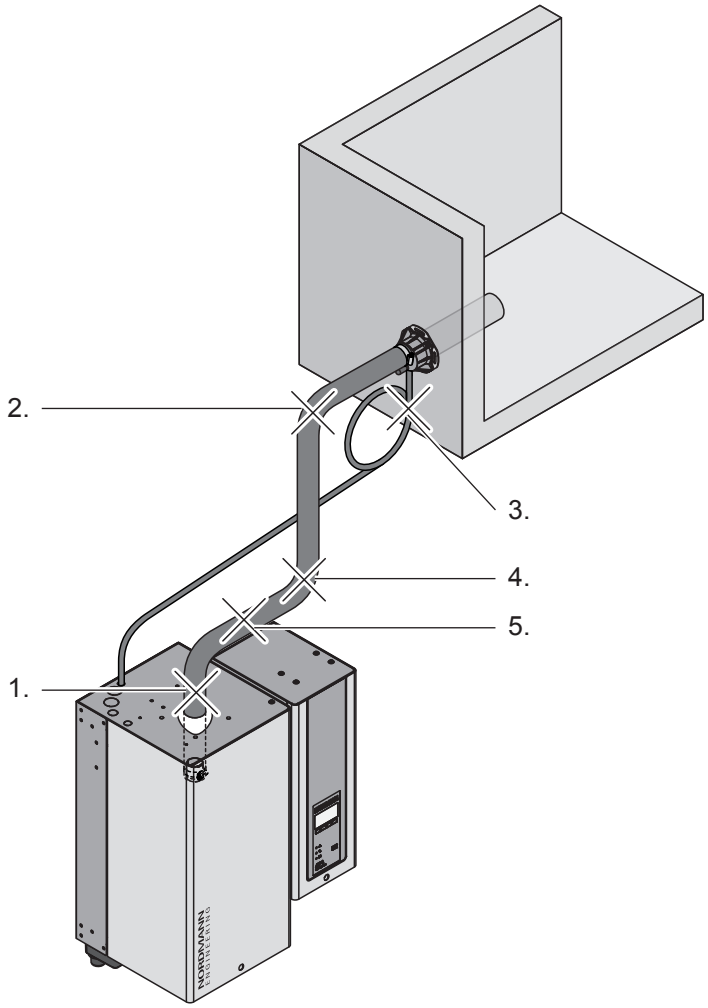
For steam lines with fixed piping, the same instructions apply to the laying of the piping as already described.



The following additional notes should be observed:

– The **minimum internal diameter of the steam line** (diameter dependent on the steam generator) should be applied over the whole length of the piping.
– Use exclusively copper pipe or stainless steel (min. DIN 1.4301).
– To minimize the condensate formation (=loss), the steam pipes must be insulated.
– The **minimum bend radius** for solid pipes is **5 x internal diameter**.
– Connection of the steam pipes to the steam distributor and steam generator is effected by means of short lengths of steam hose secured with hose clamps.
– **Important!** Allowance must be made for a **pressure loss of approx. 100 Pa** per meter length or per 90° bend.

5.4.4 Common steam and condensate line errors



1. Steam hose not led at least 300 mm perpendicularly upwards before first bend.
2. Minimum bend radius of steam hose of 300 mm not maintained (forming of condensate).
3. Siphon of the condensate hose not at least 300 mm below the steam distributor.
4. No condensate drain installed at vertical transition.
5 . Steam hose not sloped (slope min. 20 %).

5.4.5 Inspecting the steam installation

Use the following check list to ascertain that the steam installation was performed correctly:

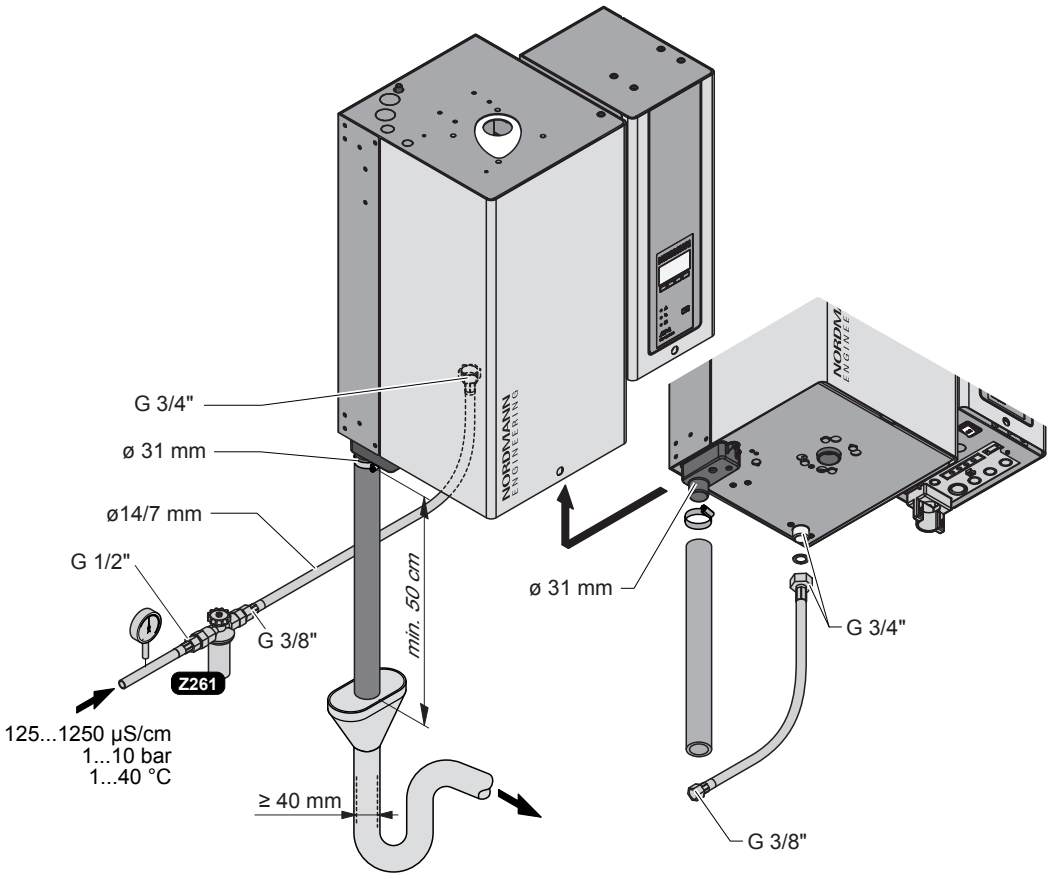
– Steam distributor
  - ☐ Steam distributors correctly positioned and secured (screws tightened)?
  - ☐ Are the outlet orifices at right angles to the air flow direction?

– Steam hose
  - ☐ Maximum length of 4 m?
  - ☐ Minimum bend radius of 300 mm (5 x internal diameter with fixed piping)?
  - ☐ Have the instructions for hose positioning been followed?
  - ☐ Steam hose: no sagging (condensate pocket) or condensate drain with siphon (hose bend with a minimum diameter of 200 mm) installed at the lowest point?
  - ☐ Rigid steam lines: properly insulated? Correct installation material used? Minimum internal diameter maintained?
  - ☐ Steam hose(s) securely attached with clamps?
  - ☐ Heat expansion during operation and shortening of the hose with ageing taken into consideration?
  - ☐ Is the lead through of the steam hose on top of the unit sealed (safeguarding of the IP21 protection)?

– Condensate hose
  - ☐ Downslope of at least 20 %?
  - ☐ Siphon (min. ø200 mm) existing and filled with water?
  - ☐ Condensate hose correctly fixed and not kinked?

5.5 Water installation

5.5.1 Overview water installation



5.5.2 *Notes on water installation*

Water supply

The water supply is to be carried out according to the figure found in chapter 5.5.1 and the applicable local regulations for water installations. The indicated connection specifications must be observed.

– The installation of the **filter valve** (accessory “Z261”, alternatively a shut-off valve and a 5 µm water filter can be used) should be made as close as possible to the steam generator.

– Admissible mains pressure **1.0 to 10.0 bar (hammer-free system)** For mains pressures >10 bar, the connection must be made via a pressure reducing valve (adjusted to 1.0 bar). For mains pressures <1.0 bar please contact your Nordmann supplier.

– **Notes on water quality**:
  – For the water supply of the Nordmann AT4 D, use exclusively **untreated drinking water**.
  – The use of **additives** such as corrosion inhibitors, disinfectants, etc. is **not allowed**, since these additives may endanger health and affect proper operation.
  – If the Nordmann AT4 D shall be operated with softened or partly softened water, please contact your Nordmann supplier.

– The connection material must be **pressure-proof** and **certified for use in drinking water systems**.

– **Important!** Before connecting the water line**, the line should be well flushed out**.

CAUTION!

The thread at the steam generator connection is made of plastic. To avoid overtightening, the union nut of the water pipe must be **tightened by hand** only.

Water drain

The water drain is to be carried out according to the figure found in chapter 5.5.1 and the applicable local regulations for water installations. The indicated connection specifications must be observed.

– Make sure that the drain pipe is correctly fixed and easily accessible for inspections and cleaning purposes.

– The draining temperature is: **80…90 °C**. Use temperature-resistant installation materials only!

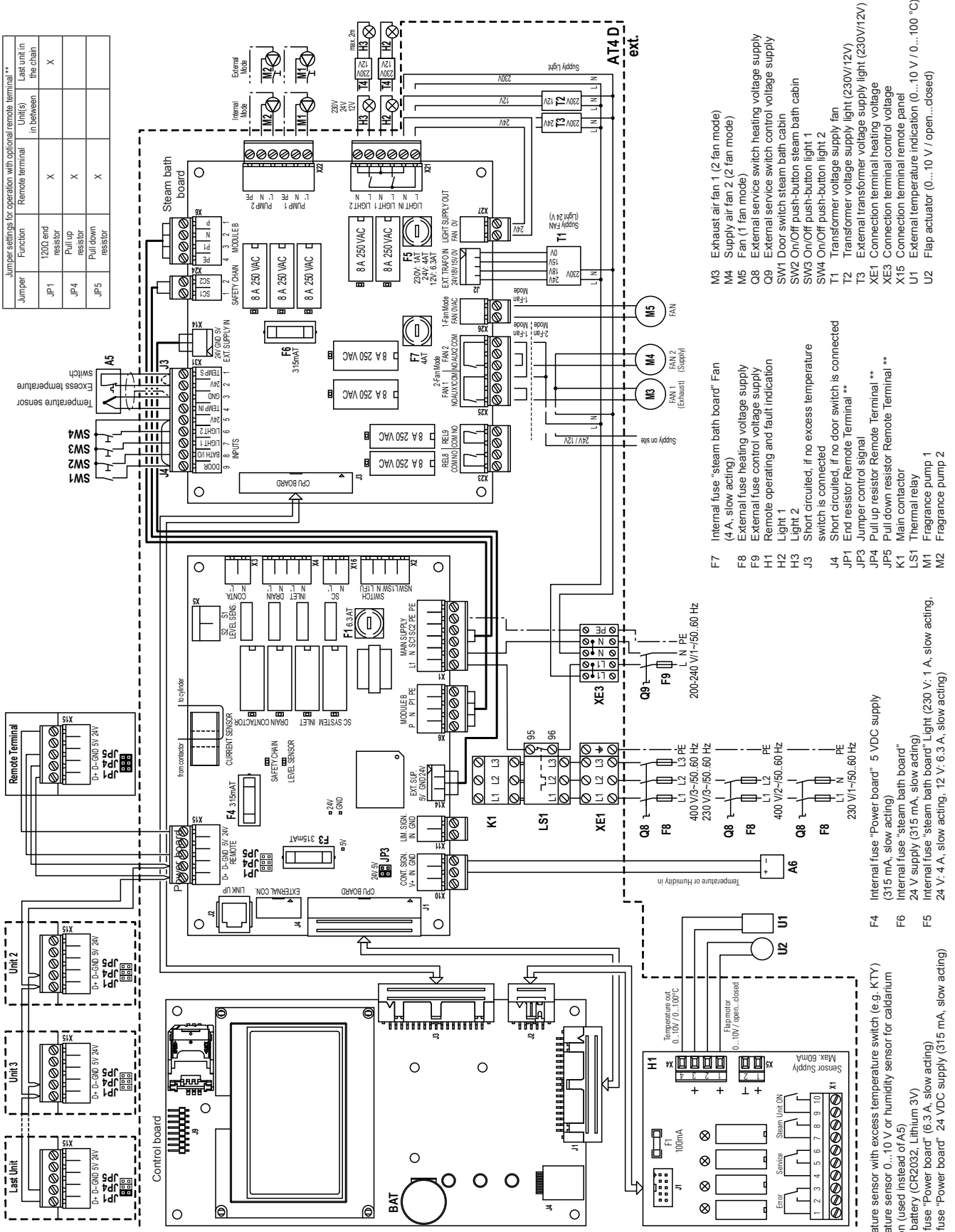
5.5.3 Inspecting the water installation

Check the following topics:

– Water supply
  - ☐ Has filter valve (accessory “Z261”) or shut-off valve and 5 µm water filter respectively been installed in supply line?
  - ☐ Have admissible water pressure (1 – 10 bar) and admissible temperature (1 – 40 °C) been observed?
  - ☐ Does the supply capacity match the steam generator and is the minimum inside diameter of the supply pipe maintained throughout the entire length?
  - ☐ Are all components and pipes properly secured and are all threaded connections securely tightened?
  - ☐ Is the water system properly sealed?
  - ☐ Does the water supply installation meet the requirements of the local regulations for water installations?
– Water drain
  - ☐ Is the minimum inside diameter of the drain pipe of 40 mm maintained throughout the entire length?
  - ☐ Has drain pipe been installed with a downslope of at least 10 %?
  - ☐ Has the heat resistance of the material used been verified to be at least 100 °C?
  - ☐ Is the drain hose properly secured (hose clamps at unit connection tightened)?
  - ☐ Does the water drain installation meet the requirements of the local regulations for water installations?

5.6 Electric installation

5.6.1 Wiring diagram Nordmann AT4 D



5.6.2 Notes on electric installation

Important notes

– The electric installation must be carried out according to the wiring diagram in chapter 5.6.1, the notes on electric installation as well as the applicable local regulations. All information given in the wiring diagram must be followed and observed.

– All cables must be lead into the unit via the cable openings equipped with cable glands (e.g. option “CG-cable gland”). The cable for the heating voltage supply must be lead into the unit from the bottom via the cable opening equipped with the clamp strap. Fix the cable with the clamp strap.

– Make sure the cables do not scrub on any components or become a stumbling trap.

– Maximum cable length and required cross section per wire must be observed.

– The supply voltages must match the respective voltages (heating and control voltage) stated in the wiring diagram.

Heating voltage supply

CAUTION!

Before connecting, ensure that the mains voltage corresponds with the **heating voltage for the unit** (see type plate).

The connection to the heating voltage is made in accordance with the wiring diagram, to the **terminal block "XE1"** in the control compartment. The customer is to install a **service switch "Q8"** (disconnecting device with a minimum contact opening of 3 mm is an essential requirement) and a **fuse group "F8"** (essential requirement, fuses are to be as detailed in the following table) in the supply line. The supply wiring is to be fed into the unit via the clamp strap on the bottom of the unit.

Heating voltage	Max. steam capacity [kg/h]	Nordmann AT4 ..	Nominal power [kW]	Nominal current [A]	Main fuses F8 [A]
400V3 (400 V/3~/50...60 Hz)	5	534	3,8	5,4	3x 10
	8	834	6,0	8,7	3x 16
	15	1534	11,3	16,2	3x 20
	23	2364	17,3	24,9	3x 35
	32	3264	24,0	34,6	3x 50
	45	4564	33,8	48,7	3x 63
	65	6564	48,8	70,4	3x 100
400V2 (400 V/2~/50...60 Hz)	5	524	3,8	9,4	2x 16
	8	824	6,0	15,0	2x 20
230V3 (230 V/3~/50...60 Hz)	5	532	3,8	9,4	3x 16
	8	832	6,0	15,1	3x 20
	15	1532	11,3	28,2	3x 35
	23	2362	17,3	43,3	3x 63
	32	3262	24,0	60,2	3x 80
230V1 (230V/1~/50...60Hz)	5	522	3,8	16,3	25
	8	822	6,0	26,1	35

The cross-section of the mains cable must comply with the applicable local regulations.

Control voltage supply

CAUTION!

– Before connecting, ensure that the mains voltage corresponds with the **control voltage of the unit (200-240 V/1~/50…60 Hz).**

– The steam generator must only be connected to a **mains supply with a protective conductor**.

The connection to the control voltage is made in accordance with the wiring diagram, to the **terminal block "XE3"** in the control compartment. The customer is to install a **service switch "Q9"** in the supply line (all pole disconnecting device with a minimum contact opening of 3 mm) and an **"F9" fuse (max. 10 A slow acting)** (these are both essential requirements).

The cross-section of the mains cable must comply with the applicable local regulations (minimum of 1.5 mm^2).

Remote operating and fault indication H1 (Option "RFI")

The remote operating and fault indicators must be connected to the respective potential-free relay contacts of the remote indicator board according to the wiring diagram:

– "Error": This relay is activated if an error is present.

– "Service": This relay is activated when the set service interval has expired.

– "Steam": This relay closes as soon as the unit produces steam.

– "Unit On": This relay closes as soon as the unit is switched on via the unit switch.

The **maximum contact loading** is **250V/8A**.

Appropriate suppressor modules are to be used for the switching of relays and miniature contactors.

Remote temperature indication (U1)

Analogue output 0...10 V (0...100 °C) for remote temperature indication.

Analogue output flap actuator U2

Analogue output 0...10V (open...closed) for the control of the flap actuator. The flap actuator is connected to the appropriate terminals on the remote operating and fault indication board according to the wiring diagram. The output signal is always active.

The cross-section of the connecting cable must comply with the applicable local regulations.

Temperature control and monitoring (A5)

– **Temperature sensor**

The temperature sensor is connected to the terminals “TEMP IN” (+) and “GND” (–) of terminal bloc “X31” on the steam bath board. The steam bath board is ready for the connection of these types of temperature sensors, hence not further adjustments are required.

The temperature sensor must be installed in a appropriate location inside the steam bath (away from the steam exit).

Please refer the separate installation instructions for proper location and connection of the temperature sensor.

– **Excess temperature switch**

An excess temperature switch for the monitoring of the maximum steam bath temperature is connected to the terminals “24V” and “TEMP S” of terminal bloc “X31” on the steam bath board.

If, for whatever reason, no excess temperature switch is connected, the terminals “24V” and “TEMP S” must be short circuited using a cable bridge “J3”.

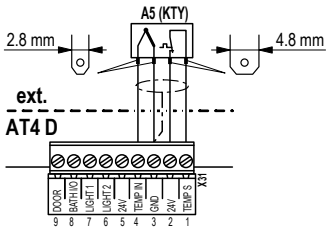
CAUTION!

Do not apply any **extraneous voltage** to the terminals “24V” and “TEMP S”.

The cross-section of the connecting cable must comply with the applicable local regulations.

We recommend the use of a shielded cable for the connection of the temperature sensor and the excess temperature switch.

– **Wiring diagram temperature sensor KTY with integrated excess temperature switch (accessory)**



External temperature signal 0-10V (A6)

Alternatively to the temperature sensor KTY an external 0-10V signal from a building management system or from a separate temperature sensor can be used to control the steam bath temperature. The 0-10 V signal is connected to the terminals “IN” (+) and “GND” (–) of terminal bloc “X10” on the power board. The configuration of the control signal is made via the control software of the Nordmann AT4 D.

Fragrance pump M1 and M2 (230VAC)

The fragrance pumps are connected to the appropriate terminals of terminal bloc “X22” on the steam bath board according to the wiring diagram. The connection layout is dependent on the operating mode (internal or external control) of the fragrance pumps.

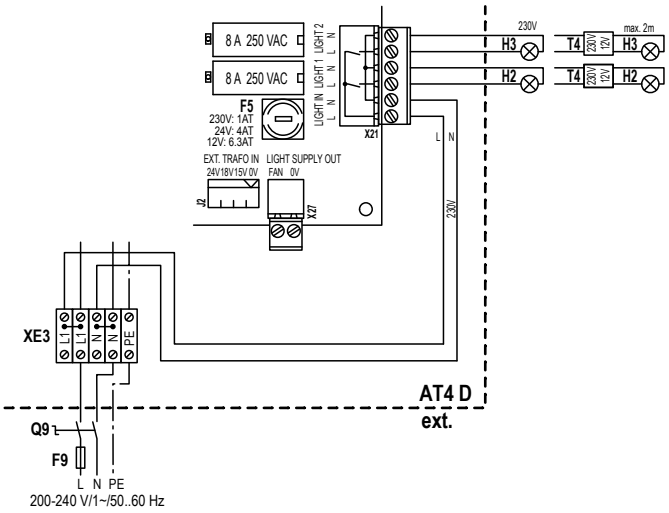
The cross-section of the connecting cable must comply with the applicable local regulations.

Steam bath lighting H2 and H3

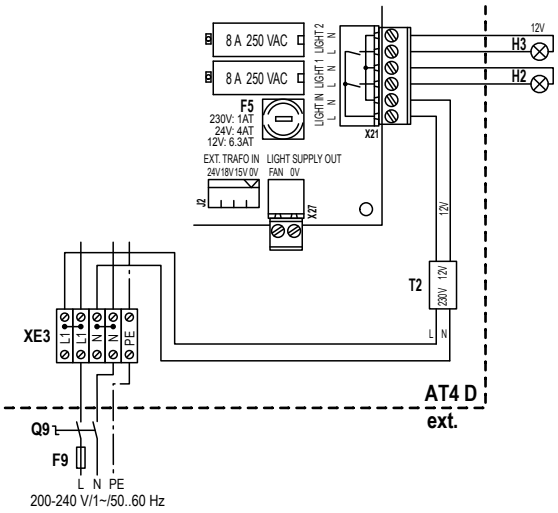
The steam bath lighting (Light 1 and Light 2) is connected to the appropriate terminals of terminal bloc “X21” on the steam bath board according to the wiring diagram. The voltage supply of the steam bath lighting is made dependent on the used illuminant either via the internal 230 VAC supply or via the optional transformers T1 (230V/24V), T2 (230V/12V) or T3 (230V/24V)

The cross-section of the connecting cables must comply with the applicable local regulations.

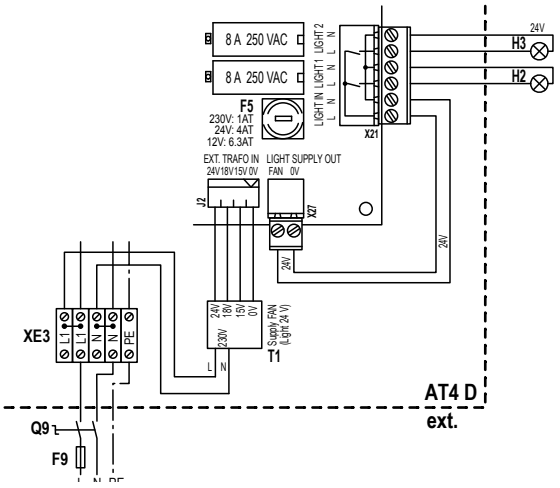
230 V voltage supply



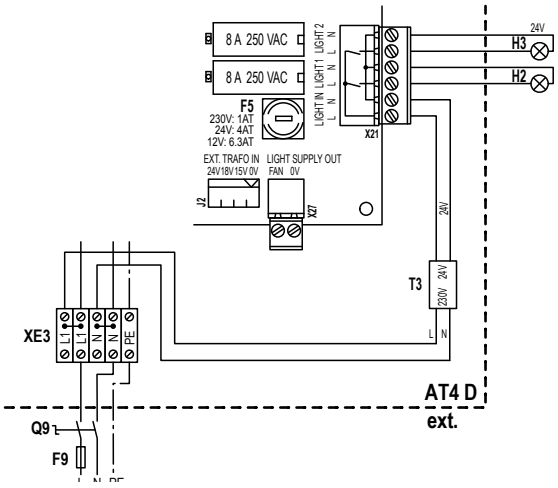
12 V voltage supply



24 V voltage supply (variant 1)

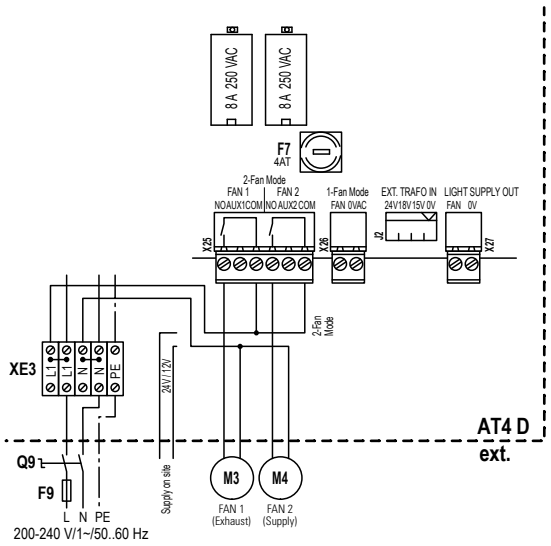


24 V voltage supply (variant 2)



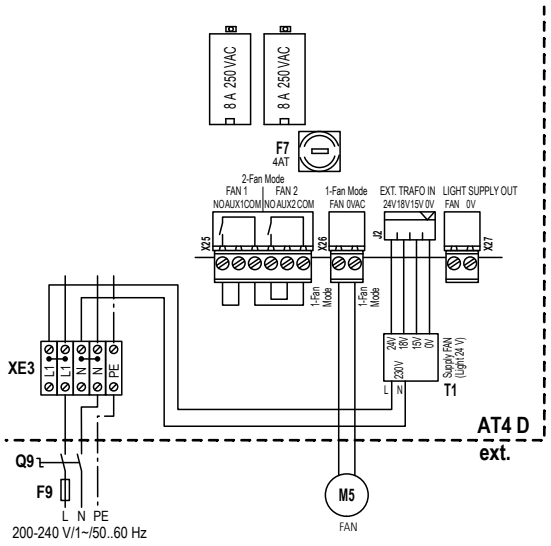
Steam bath fans M3/M4 (2-Fan mode) and **M5 (**1-fan mode)

– 2-fan mode



The fans M3 (exhaust air) and M4 (supply air) are connected to the appropriate terminals of terminal bloc “X25” on the steam bath board. The voltage supply of the fans is made either via the internal 230 VAC supply or an external 12 V or 24 V supply.

– 1-fan mode (three-stage)



The three-stage fan M5 is connected to the appropriate terminals of terminal bloc “X26” on the steam bath board. The voltage supply of the fan M5 is made via the optional transformer T1.

For 1-fan mode (three stage) terminal bloc “X25” must be equipped with cable bridges as shown in the wiring diagram.

The cross-section of the connecting cables must comply with the applicable local regulations.

Switch SW1 and push-buttons SW2...SW4

The switch SW1 (door switch) and the push-buttons SW2 (steam bath On/Off), SW3 (Light 1 On/Off) and SW4 (Light 2 On/Off) are connected to the appropriate terminals of terminal bloc “X31” on the steam bath board.
Note: If no door switch (SW1) is connected the terminals “DOOR” and “24V” must be short circuited using a cable bridge.

The cross-section of the connecting cable must comply with the applicable local regulations.

Connection of the remote terminal (Option RP)

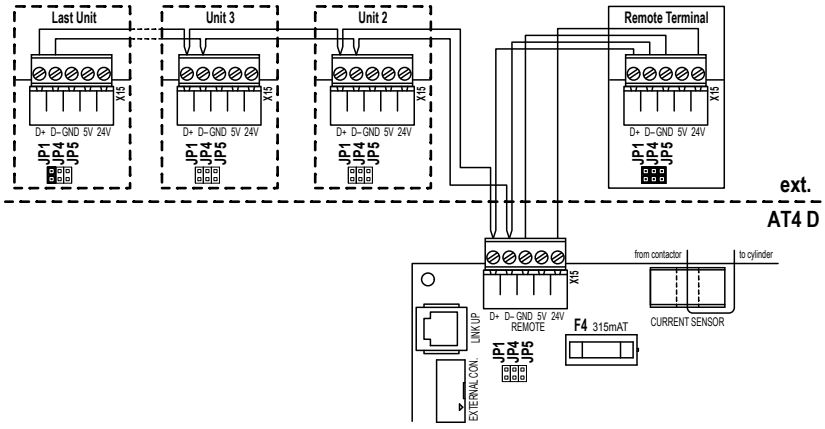
The optional remote terminal is to be connected via a four-wire cable to the corresponding contacts of terminal block X15 on the power board of one of the humidifiers.

Addtional humidifiers (max. 8) to be remote controlled are connected in series via the contacts “D+” and “D–” of terminal block X15 to the humidifier connected to the remote terminal using a two-wire cable.

The maximum cable length between the units is 50 m. Cable section 0.5 mm^2.

The termination of the remote terminal bus is established via the jumpers JP1, JP4 and JP5 on the power boards of the remote terminal and the connected humidifiers (see table below).

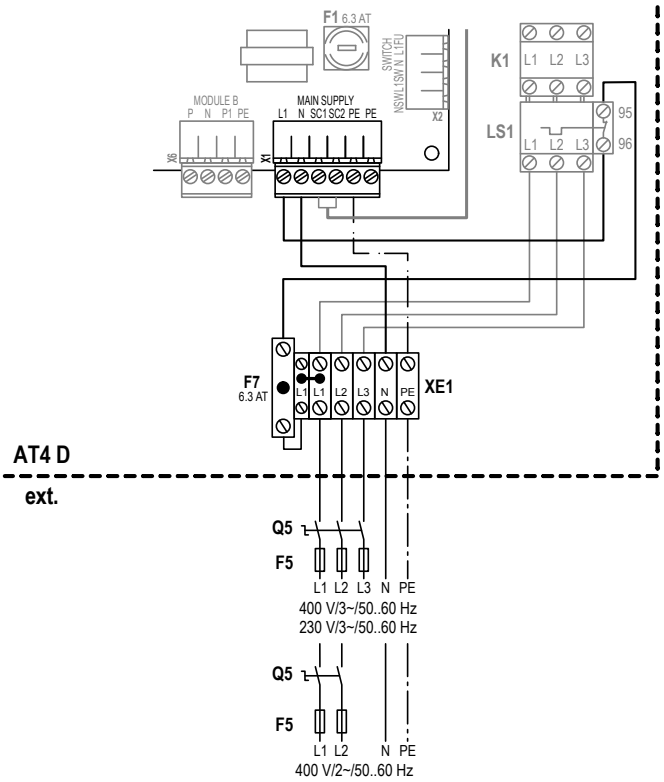
Jumper settings for operation with optional remote terminal				
Jumper	Function	Remote terminal	Unit(s) in between	Last unit in the chain
JP1	120Ω end resistor	X		X
JP4	Pull up resistor	X		
JP5	Pull down resistor	X		



Internal control voltage supply via option CVI

– Option **CVI** (mains supply **with neutral lead**):

For mains voltages of 400 V/3~/50...60 Hz, 400 V/2~/50...60 Hz and 230 V/3~/50...60 Hz. The option CVI is connected according to the following wiring diagram.



5.6.3 Inspecting the electrical installation

Check the following points:

☐ Do the supply voltages for heating and control comply with the relevant voltages given in the wiring diagram?

☐ Is the correct CF Card inserted?

☐ Are the voltage supplies (heating and control voltage) correctly fused?

☐ Are the service switches “Q..” installed in the supply lines for to the heating and control voltage?

☐ Are all components correctly connected according to the wiring diagram?

☐ Are all connecting cables fastened?

☐ Are the connecting cables free of tension (passed through cable glands?)

☐ Does the electric installation meet the applicable local regulations for electric installations?

☐ Is the unit reassembled correctly and the front panel of the control compartment fixed with the screw?

6 Product specifications

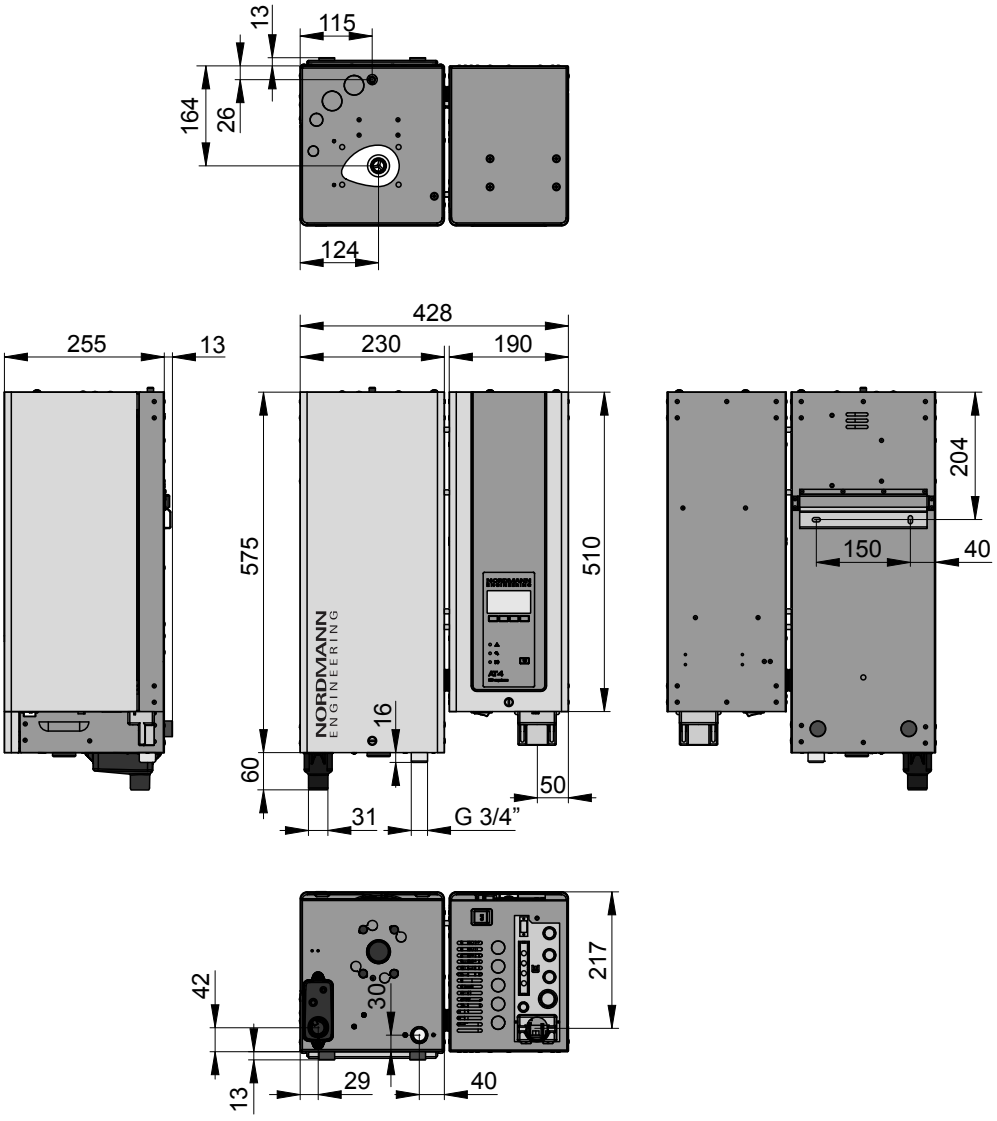
6.1 Technical data

Steam capacity in kg/h	**5**	**8**	**15**	**23**	**32**	**45**	**65**
Capacity range in kg/h	**1...5**	**1.6...8**	**3...15**	**4,6...23**	**6,4...32**	**9...45**	**13...65**
Nominal power in kW	**3,8**	**6,0**	**11,3**	**17,3**	**24,0**	**33,8**	**48,8**
Heating voltage 230V/1~/50..60Hz *							
Unit model	**522**	**822**					
Nominal current in A	16,3	26,1					
Steam cylinder type **	522A	822A					
Heating voltage 400V/2~/50..60Hz *							
Unit model	**524**	**824**					
Nominal current in A	9,4	15,0					
Steam cylinder type **	524A	824A					
Heating voltage 230V/3~/50..60Hz *							
Unit model	**532**	**832**	**1532**	**2362**	**3262**		
Nominal current in A	9,4	15,1	28,2	43,3	60,2		
Steam cylinder type **	532A	832A	1532A	2362A	3262A		
Heating voltage 400V/3~/50..60Hz *							
Unit model	**534**	**834**	**1534**	**2364**	**3264**	**4564**	**6564**
Nominal current in A	5,4	8,7	16,2	24,9	34,6	48,7	70,4
Steam cylinder type **	534A	834A	1534A	2364A	3264A	4564A	6564A
Steam cylinder type ***	534A-L	834A-L	1534A-L	2364A-L	3264A-L	4564A-L	---
Control voltage	200-240 V/1~/50..60 Hz						
Operating conditions							
Admissible water pressure	1...10 bar						
Water quality	Untreated drinking water with a conductivity of 125...1250 µS/cm						
Admissible water temperature	1...40 °C						
Admissible ambient temperature	1...40 °C						
Admissible ambient humidity	max. 75 %rF (non condensing)						
Admissible air pressure in the steam bath cabin	-0.8 kPa...1.5 kPa						
Type of protection	IP21						
Conformity	CE, VDE, GOST						
Dimensions/Weights							
Width in mm	428	428	508	508	563	563	563
Height in mm	575	575	620	620	640	640	640
Depth in mm	255	255	345	345	354	354	354
Net weight in kg	12		19		28		30
Operating weight in kg	17		29		65		67
Water supply connector	G 3/4" (male thread)						
Water drain connector	ø 31 mm (outside diameter)						
Steam connector	1x ø 22		1x ø 35			2x ø 35	
Options							
Cable gland	1x CG						
Steam hose connector with condensate trap	1x CT22		1x CT35			2x CT35	
Internal control voltage supply	1x S-CVI			1x M-CVI			1x L-CVI
@Link AT4 D	@Link AT4 D						
Accessories							
Filter valve	1x Z261						
Nordmann AT4 D Remote Terminal	RP						
Nordmann AT4 D Touch Screen Panel	TSP						
Temperature sensor KTY	KTY						
Steam distributor	1xW22		1xW35			2xW35	
Fragrance pump	1xFP 240V						
T-piece for fragrance injection	1xTSD22		1xTSD35			2xTSD35	
Steam hose / meter	1xDS22		1xDS35			2xDS35	
Condensate hose / meter	KS10						
Condensate drain	1xCD22		1xCD35			2xCD35	
EcoTherm insulation hose	1xECT22		1xECT60			2xECT60	
50-210VA transformer for 4x50W lamps	TRL						

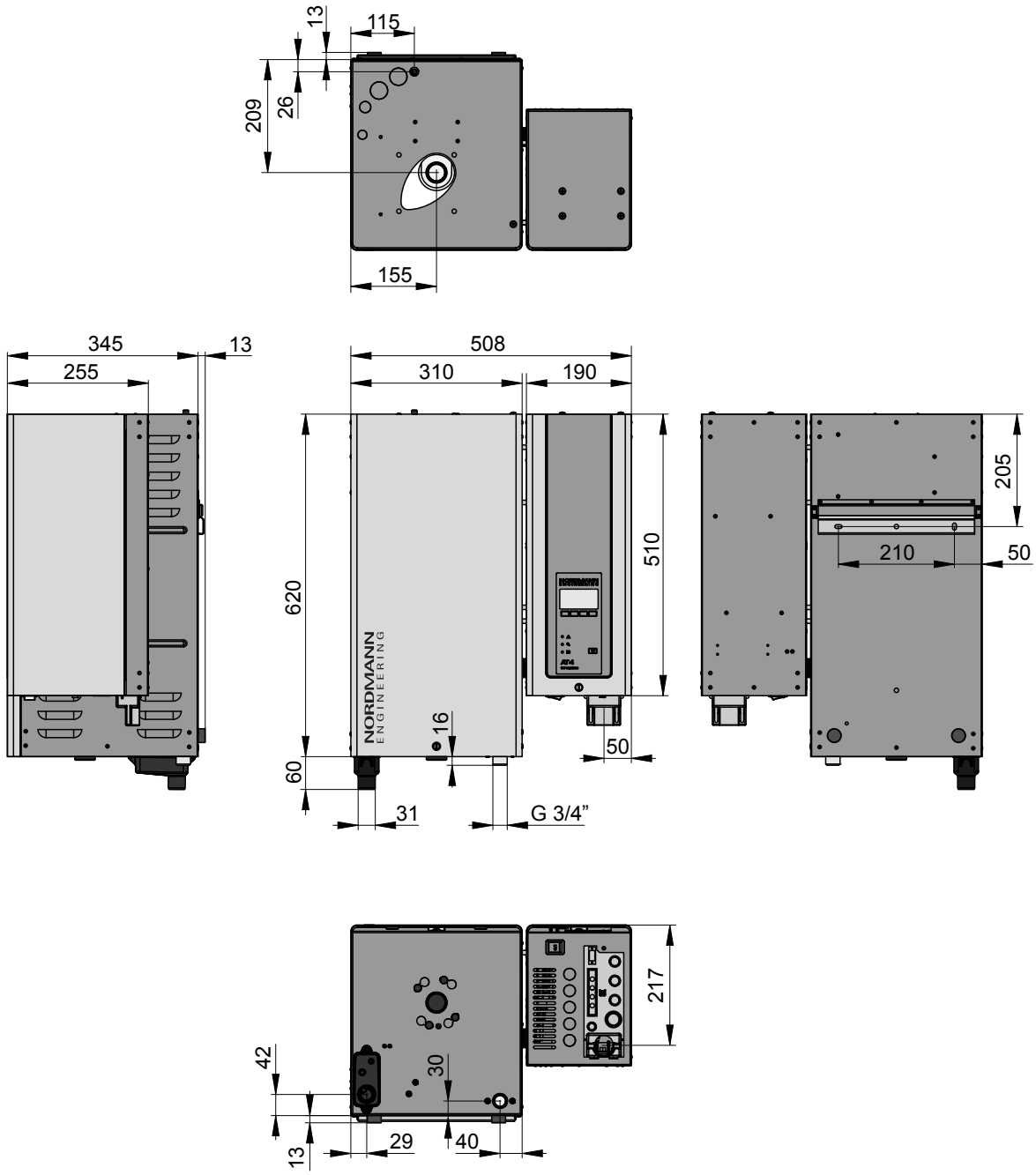
* Other heating voltages on request
** Steam cylinder for water conductivity from 125 to 1250 µS/cm (standard version)
*** Steam cylinder for low water conductivity from 80 to 125 µS/cm

6.2 Unit dimensions

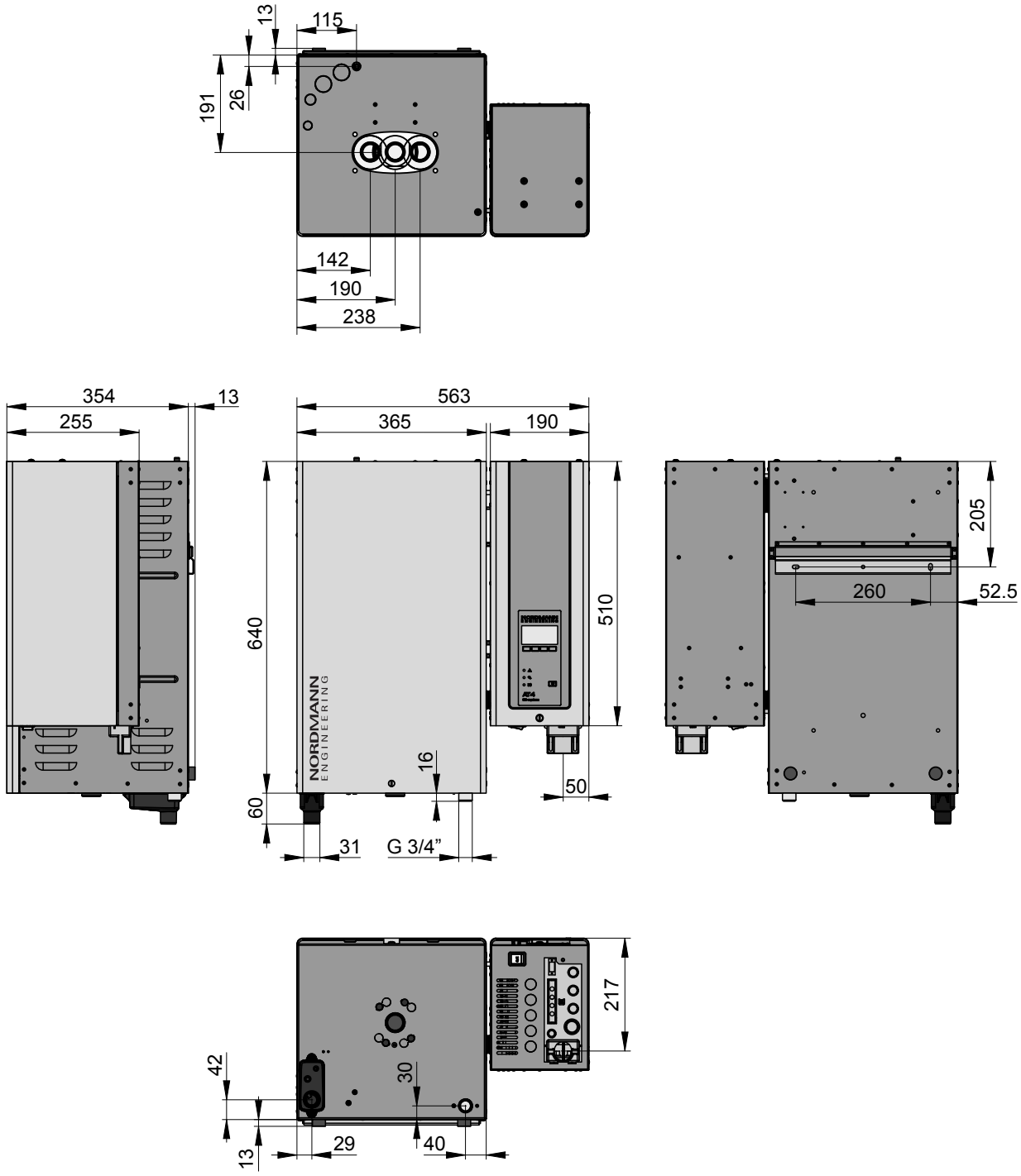
Nordmann AT4 D 5../8.. (Dimensions in mm)



Nordmann AT4 D 15../23.. (Dimensions in mm)



Nordmann AT4 D 32../4564/6564 (Dimensions in mm)



Notes

CH94/0002.00

Condair Group AG
Gwattstrasse 17, 8808 Pfäffikon SZ, Switzerland
Phone +41 55 416 61 11, Fax +41 55 588 00 07
info@condair.com, www.condairgroup.com