Ambient, no heat
Electrical heat 9-18 kW
Water heat

Lengths: 1, 1,5 and 2 metres

Thermozone® AD 300 A/E/W

Air curtains for entry doors with heights of up to 3,5 metres

AD300 is an air curtain with a modern design intented for permanent installation above doorways with heights of up to 3,5 meters. By separating zones of different temperature with a jet of air, AD300 effectively prevents cold draughts through open doorways and provides good heating comfort and the opportunity to make use of the floor space close to the opening. AD300 can also be used for heating and drying at the opening.

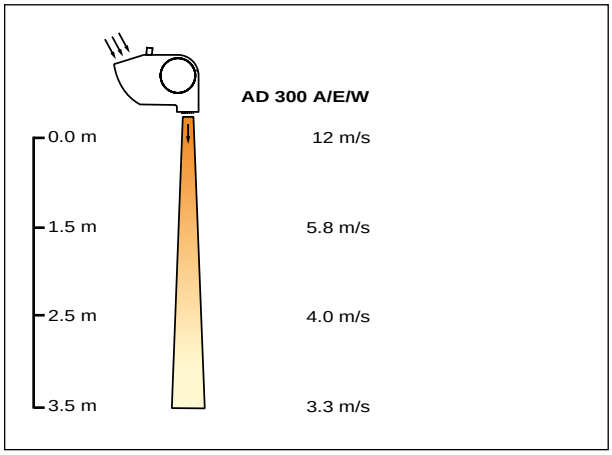
A significantly reduced energy loss gives large savings. An adjustable air blower grille makes it possible to direct the air for an optimal air curtain effect.

With AD300A without heat it is possible to significantly reduce energy losses through openings to refrigerated rooms, or openings to air conditioned rooms.

AD300 can be built into false ceilings. For wide doorways it is possible to mount several units beside each other and control them with a single thermostat and control panel. The three different product lengths make it possible to cover openings of different widths.

- Low sound level.
- Corrosion proof housing made of hot zinc-plated and powder enamelled steel panels. Colour: RAL 9016.
- Adjustable c/c distance between mounting brackets.
- Easy to mount.
- Compact and easily positioned.
- The front panel is easy to remove, which facilitates installation and maintenance.
- Optimized airflow with Thermozone technology.

Air velocity profile



2011-03-10

Technical specifications | Thermozone AD 300 A without heat

Type	Output [kW]	Airflow [m³/h]	Sound level*1 [dB(A)]	Voltage [V]	Amperage [A]	Length [mm]	Weight [kg]
AD310A	0	1200/1900	46/57	230V~	1,4	1025	22
AD315A	0	1800/3200	47/60	230V~	1,8	1565	32
AD320A	0	2400/3800	50/61	230V~	2,4	2028	42

Technical specifications | Thermozone AD 300 E with electrical heat

Type	Output steps [kW]	Airflow [m³/h]	Δt*2 [°C]	Sound level*1 [dB(A)]	Voltage [V] Amperage [A] (control)	Voltage [V] Amperage [A] (heat)	Length [mm]	Weight [kg]
AD310E09	0/4,5/9	1200/1900	22/14	46/57	230V~/1,4A	400V3~/13A	1025	25
AD315E14	0/7/13,5	1800/3200	22/13	47/60	230V~/1,8A	400V3~/19,5A	1565	37
AD320E18	0/9/18	2400/3800	22/14	50/61	230V~/2,4A	400V3~/26A*3	2028	49

Technical specifications | Thermozone AD 300 W with water heat

Type	Output*4 [kW]	Airflow [m³/h]	Δt*2,4 [°C]	Water volume [l]	Sound level*1 [dB(A)]	Voltage [V]	Amperage [A]	Length [mm]	Weight [kg]
AD310W	22	1150/1800	41/35	2,1	44/57	230V~	1,2	1025	28
AD315W	37	1700/3000	43/36	3,2	46/59	230V~	1,7	1565	40
AD320W	45	2300/3600	43/37	4,1	47/60	230V~	2,4	2028	54

*1) Conditions: Distance to the unit 5 metres. Directional factor: 2. Equivalent absorption area: 200 m².
*2) Δt = temperature rise of passing air at maximum heat output and lowest/highest airflow.
*3) Power supply 2x9 kW (2x13A), separate feedings.
*4) Applicable at water temperature 80/60 °C, air temperature +15 °C.

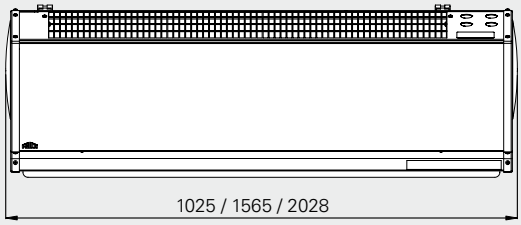
Protection class AD300A/E/W (IP20)

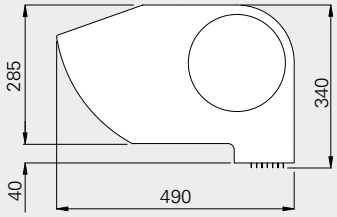
Approved by SEMKO and CE compliant.

Dimensions

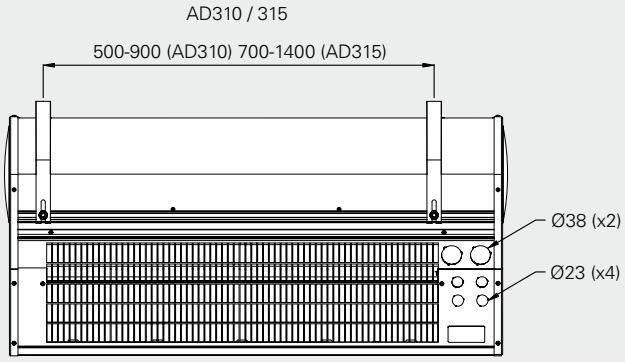
Ambient/Electrical

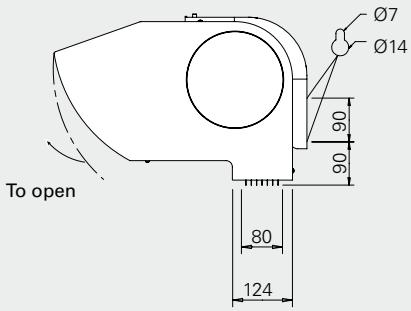
AD300A/E



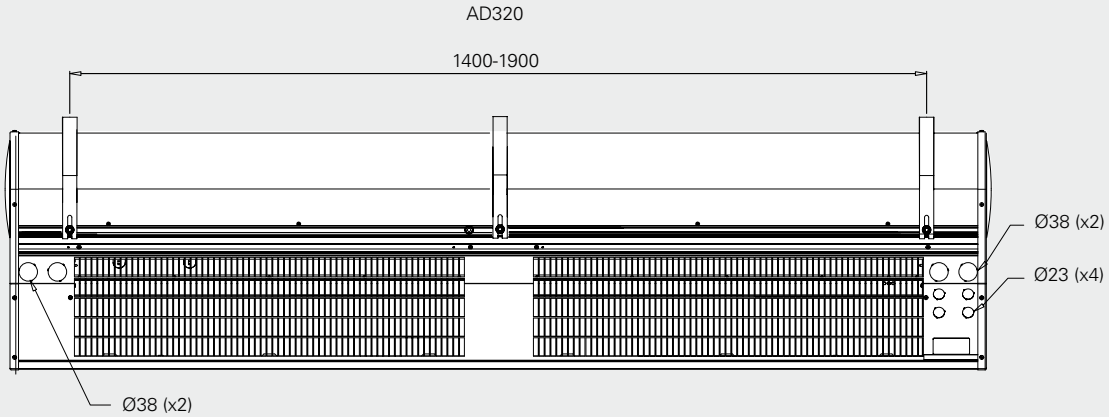


AD310/315A/E





AD320A/E

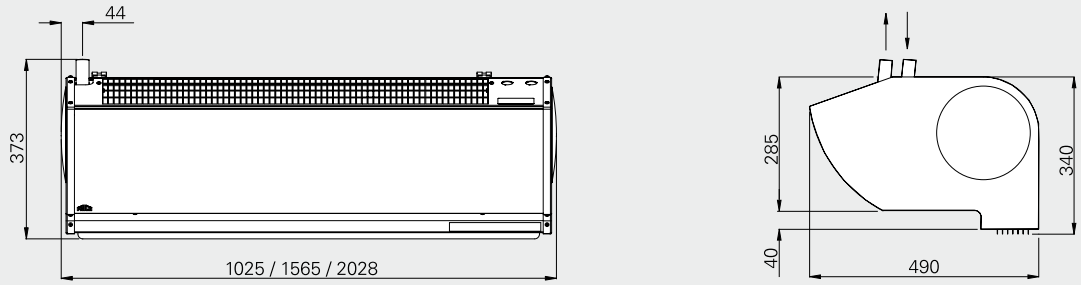


Dimensions

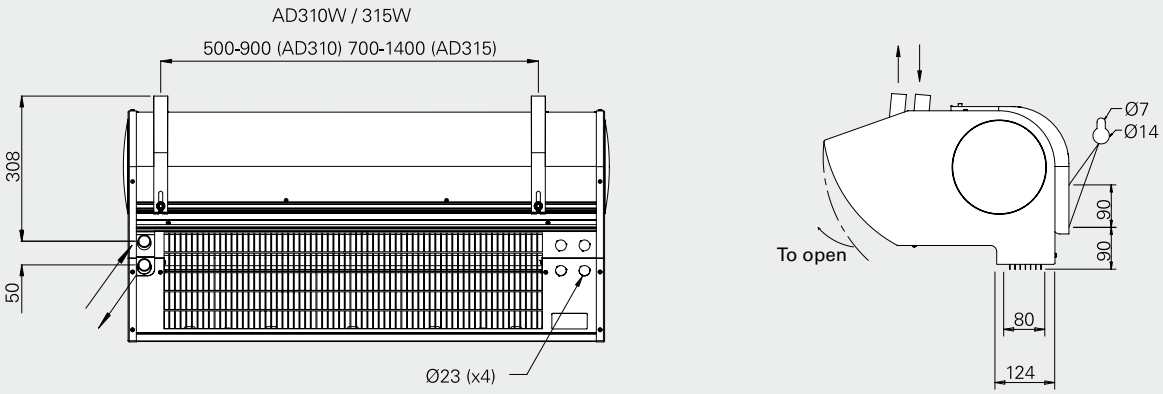
Water

Connection DN20 (3/4")
Outside thread

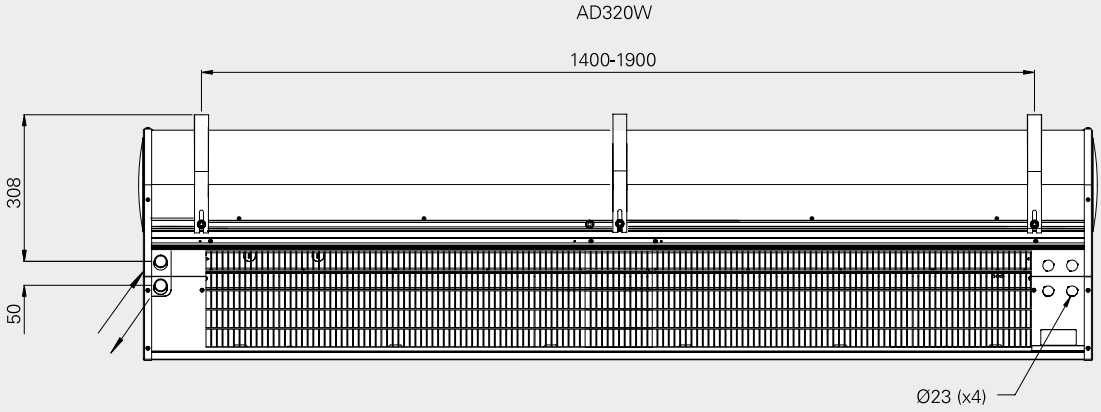
AD300W



AD310/315W



AD320W



Positioning, mounting and installation

Mounting

Thermozone AD300 can be permanently mounted on the wall or on the ceiling using threaded drop rods and a suspension kit, see next page. The air curtain unit can also be built into false ceilings, see Fig. 2. The unit can only be mounted horizontally, with the air outlet pointing downwards. Minimum distance from outlet to flammable material is 50 mm.

The distance between the mounting brackets is adjustable, which simplifies mounting. Brackets suitable for each unit are included on delivery. The 2 metre units should be fitted using three fixing points.

For maximum performance the units should cover the whole width of the opening and be fitted as close to the opening as possible. Several units can be mounted next to each other to form a continuous air curtain. The units should then be positioned as close together as possible.

Connection AD 300E

The appliance should be preceded by a triple pole switch with at least 3 mm breaking gap. The connection should be made through knock outs on the top side of the unit Ø29 mm. For connection to the supply terminal block, a cable of maximum 16 mm² is used. For connection to the control terminal block, a cable of maximum 4 mm² is used. For units with electrical heating, power and control should normally be supplied separately.

For AD320E heating elements are divided and powered by two separate supplies. See wiring diagrams and dimension drawings.

Connection AD 300W

The control cable is connected via a knock out on the top side to the left (seen from inside the building). Connections (DN20 (3/4”), outside thread) to the water heating coil are located on the top of the unit to the left (seen from inside the building). See wiring diagrams.

See page for control kits and the chapter on Controls and accessories for further information.

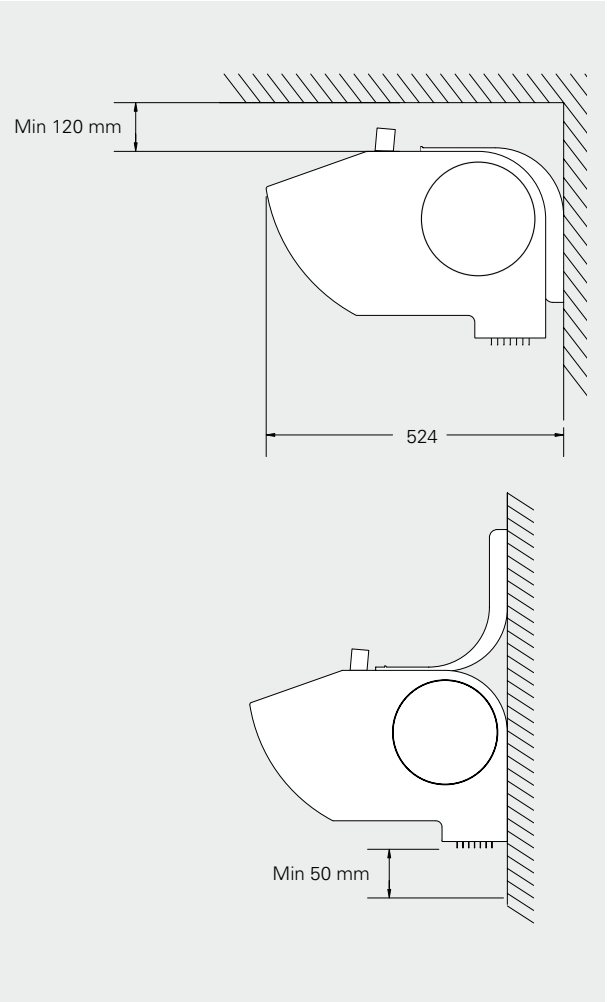


Fig. 1: Minimum distance

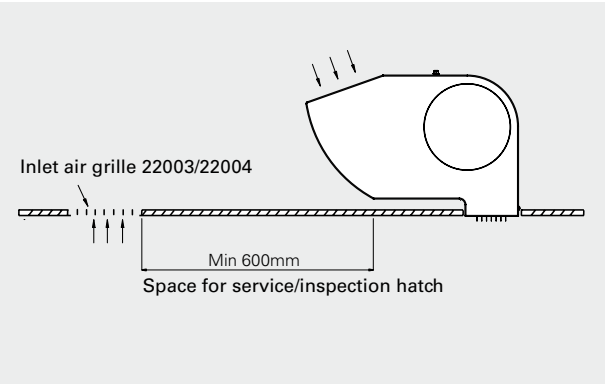
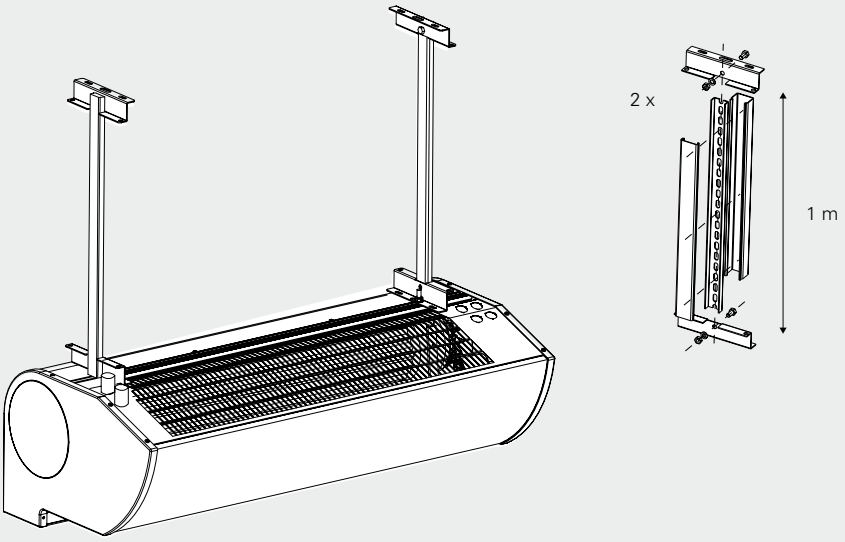


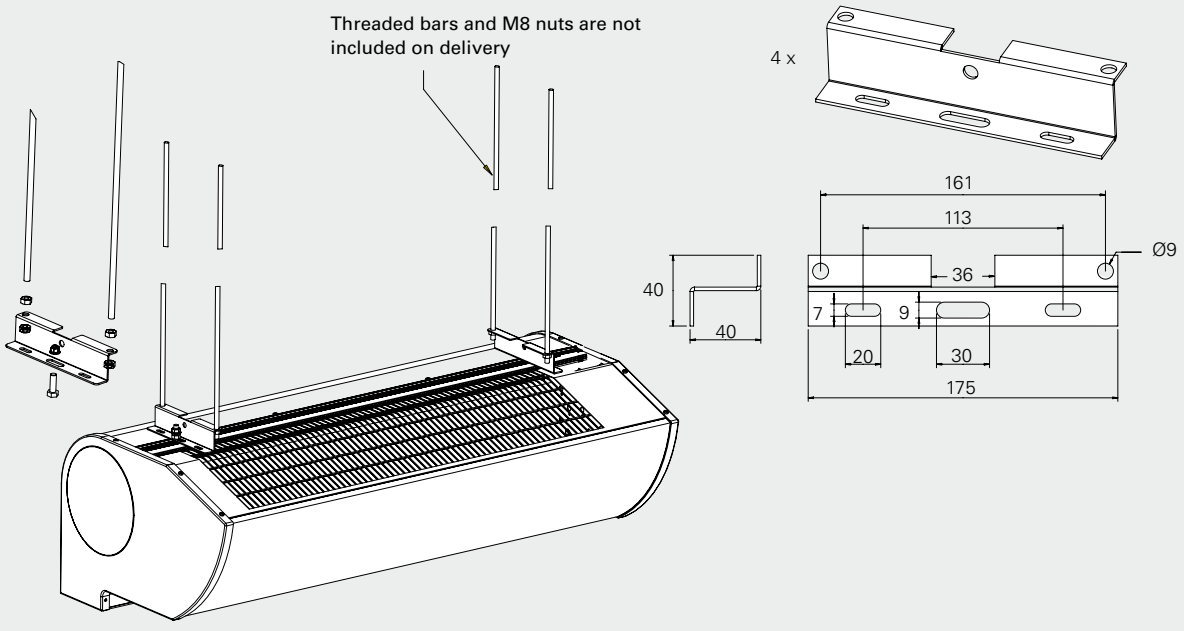
Fig. 2: False ceiling mounting

Mounting with suspension kit (extra)

ADPK1



ADPF1



Control kits

Ambient

Level 1
Airflow is controlled manually.
Complete control kit:

- CB30N, control box, controls the airflow in 3 steps

Level 2
Desired airflow is set manually and the unit starts automatically, according to the setting, when the door opens. When the door closes the fan will continue to run for the desired time (2s–10 min.) set on MDC.
Complete control kit:

- CB30N, control box, controls the airflow in 3 stages
- MDC, door contact with time relay

Electric

Level 1
Airflow is controlled manually. Room thermostat controls the heat output in 2 steps.
Control kit CK01E:

- CB32N, control box, controls the airflow in 3 steps and heat output in 2 steps
- RTI2, 2-step room thermostat

Level 2
Airflow and heat output are controlled automatically based on the opening of the door and the room temperature.

When the door is open the fan runs on high speed, when the door closes the fan will continue to run for the desired time (2s–10 min.) set on MDC. When the door is closed the fan runs on low speed if there is a need for heating, if not the fan is switched off.

The room thermostat controls the heat output. E.g. the thermostat is set on 23 °C and the difference between the steps 4 °C. The thermostat will activate below 19 °C when the door is closed. When the door opens, the thermostat will activate below 23 °C and normally the heat is switched on.
Control kit CK02E:

- CB32N, control box, controls the airflow in 3 steps and heat output in 2 steps
- MDC, magnetic door contact with time delay
- RTI2, 2-step room thermostat

Level 3
Airflow and heat output are controlled automatically based on the opening of the door, outdoor temperature and the room temperature.

The system is based on an advanced microprocessing regulator in an attractive design.

All parameters are pre-programmed for easy and quick installation.
Control kit CK03:

- ADEA, regulator (complete with outdoor sensor, built-in room sensor and door contact)
- ADEAIS, indoor sensor
- ADEAEB, control board, for external mounting

Optional control kit level 3:

- ADEA, regulator (complete with outdoor sensor, built in room sensor and door contact)
- ADEAIS, indoor sensor
- ADEAIB, control board, for internal mounting

Read more about operation and usage of ADEA in chapter on Controls and accessories.

Water

Level 1
Airflow is controlled manually. Room thermostat controls the heat output via actuator/valve.

Control kit CK01W:

- CB30N, control box , controls the airflow in 3 steps
- T10, room thermostat IP30

Note! A set of valves VR20 or VR25 or actuator+valve SD20+TVV20 or TVV25 should be added for a complete control kit.

Level 2
Airflow and heat output are controlled automatically based on the opening of the door and the room temperature.

When the door is open the fan runs on high speed, when the door closes the fan will continue to run for the desired time (2s–10 min.) set on MDC. When the door is closed the fan runs on low speed if there is a need for heating, if not the fan is switched off.

The room thermostat controls the heat output. E.g. the thermostat is set on 23 °C and the difference between the steps 4 °C. The thermostat will activate below 19 °C when the door is closed. When the door opens, the thermostat will activate below 23 °C and normally the heat is switched on.

Control kit CK02W:

- CB30N, control box, controls the airflow in 3 steps
- MDC, magnetic door contact with time delay
- RTI2, 2-step room thermostat

Note! A set of valves VR20 or VR25 or actuator+valve SD20+TVV20 or TVV25 should be added for a complete control kit.

Level 3
Airflow and heat output are controlled automatically based on the opening of the door, outdoor temperature and the room temperature.

The system is based on an advanced microprocessing regulator in an attractive design.

All parameters are pre-programmed for easy and quick installation.

Control kit CK03:

- ADEA, regulator (complete with outdoor sensor, built-in room sensor and door contact)
- ADEAIS, indoor sensor
- ADEAEB, control board, for external mounting

Note! A set of valves VR20 or VR25 or actuator+valve SD20+TVV20 or TVV25 should be added for a complete control kit.

Optional control kit level 3:

- ADEA, regulator (complete with outdoor sensor, built in room sensor and door contact)
- ADEAIS, indoor sensor
- ADEAIB, control board, for internal mounting

Note! A set of valves VR20 or VR25 or actuator+valve SD20+TVV20 or TVV25 should be added for a complete control kit.

Read more about operation and usage of ADEA in chapter on Controls and accessories.

See also chapter on Controls and accessories or contact Frico for more options.

Output charts water

			Incoming / outgoing water temperature 90/70 °C					
			Incoming air temp.= +15 °C			Incoming air temp. = +20 °C		
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**
AD310W	max	1800	26,1	57	0,31	24,1	59	0,28
	min	1150	19,2	64	0,22	17,7	65	0,21
AD315W	max	3000	44,4	58	0,52	40,9	60	0,48
	min	1700	29,9	66	0,35	27,6	67	0,32
AD320W	max	3600	55,6	60	0,66	51,3	62	0,61
	min	2300	40,6	67	0,48	37,5	68	0,44

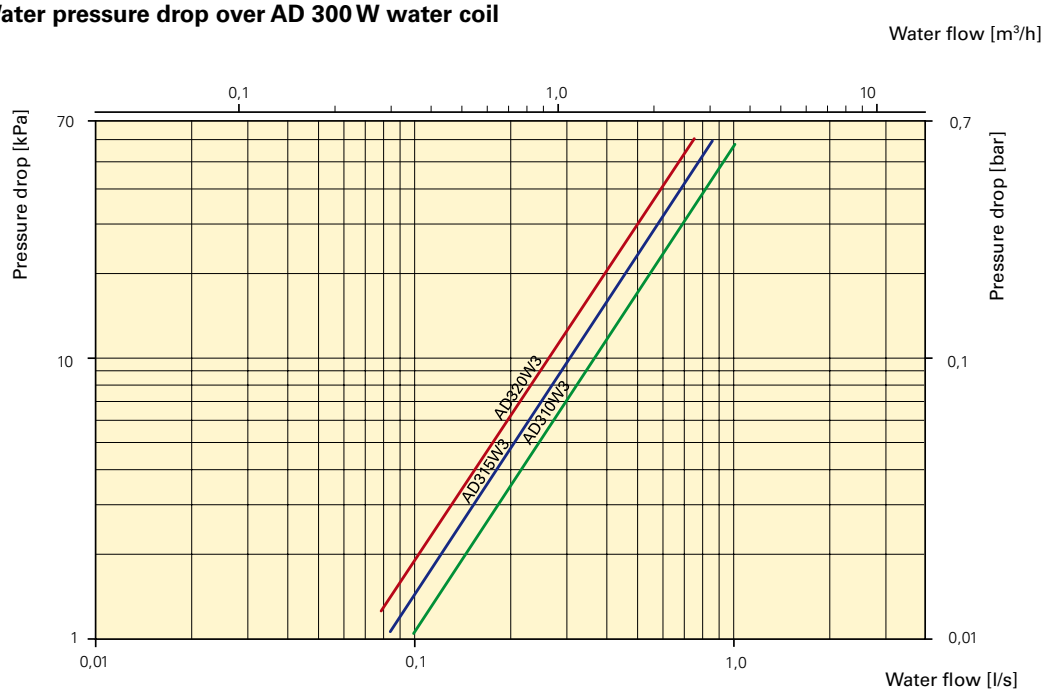
			Incoming / outgoing water temperature 80/60 °C					
			Incoming air temp.= +15 °C			Incoming air temp. = +20 °C		
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**
AD310W	max	1800	21,9	50	0,26	19,8	52	0,23
	min	1150	16,1	56	0,19	14,6	57	0,17
AD315W	max	3000	37,3	51	0,44	33,8	53	0,40
	min	1700	25,2	58	0,30	22,9	59	0,27
AD320W	max	3600	45,7	52	0,54	41,4	54	0,49
	min	2300	32,6	58	0,38	29,5	59	0,35

			Incoming / outgoing water temperature 60/50 °C					
			Incoming air temp.= +15 °C			Incoming air temp. = +20 °C		
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**
AD310W	max	1800	16,0	41	0,38	13,9	42	0,33
	min	1150	11,7	45	0,28	10,2	46	0,24
AD315W	max	3000	27,1	41	0,64	23,7	43	0,56
	min	1700	18,2	46	0,43	16,0	47	0,38
AD320W	max	3600	34,0	42	0,81	29,7	44	0,71
	min	2300	24,7	46	0,59	21,7	47	0,51

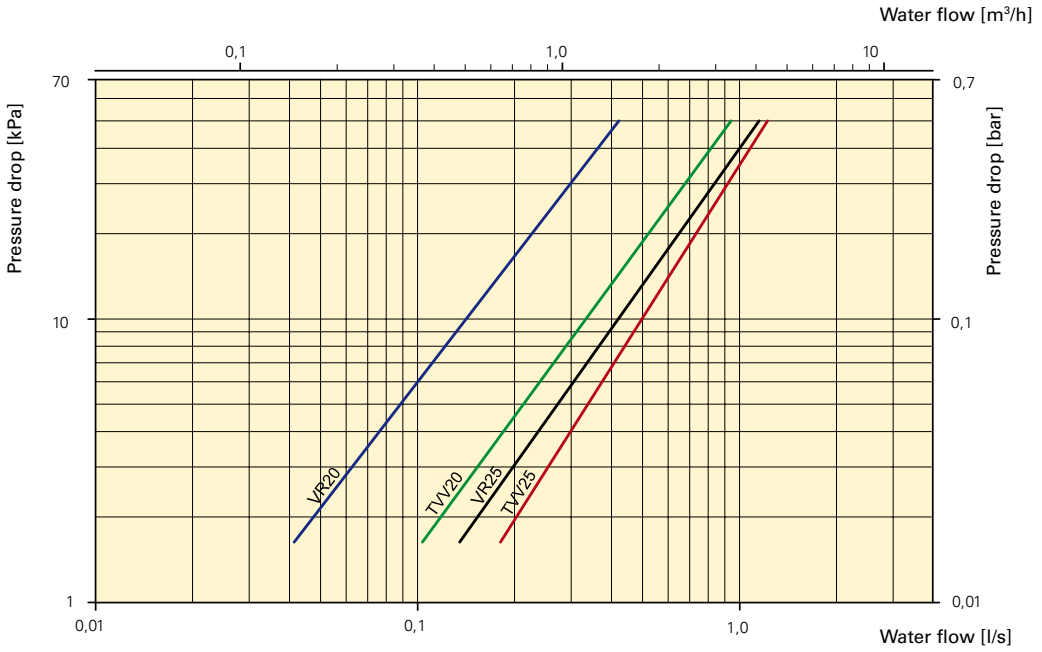
			Incoming / outgoing water temperature 60/40 °C					
			Incoming air temp.= +15 °C			Incoming air temp. = +20 °C		
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**	**Output [kW]**	**Outgoing air temp. [°C]**	**Water flow [l/s]**
AD310W	max	1800	13,1	36	0,15	11,0	38	0,13
	min	1150	9,8	40	0,11	8,3	41	0,09
AD315W	max	3000	23,0	37	0,27	19,4	39	0,23
	min	1700	15,8	42	0,18	13,4	43	0,15
AD320W	max	3600	28,1	38	0,33	23,7	39	0,28
	min	2300	20,9	41	0,24	17,7	42	0,21

Pressure drop water

Water pressure drop over AD 300 W water coil



Water pressure drop over regulations and valves



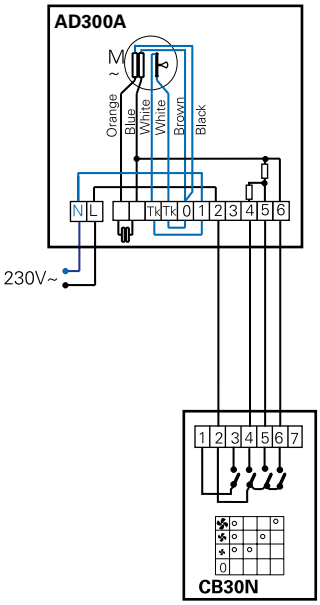
The pressure drop is calculated for an average temperature of 70 °C (PVV 80/60).
For other water temperatures, the pressure drop is multiplied by the factor K.

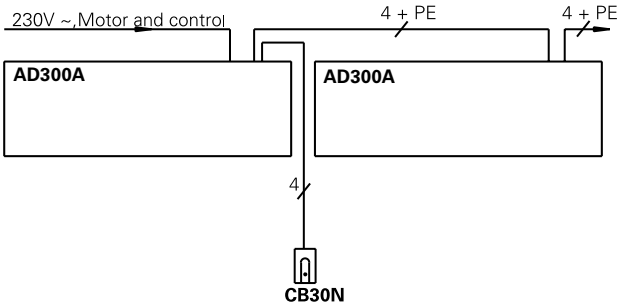
Average temp. water °C	40	50	60	70	80	90
K	1,10	1,06	1,03	1,00	0,97	0,93

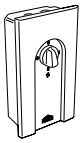
Wiring diagrams AD 300 A

Ambient control options

Ambient - Level 1

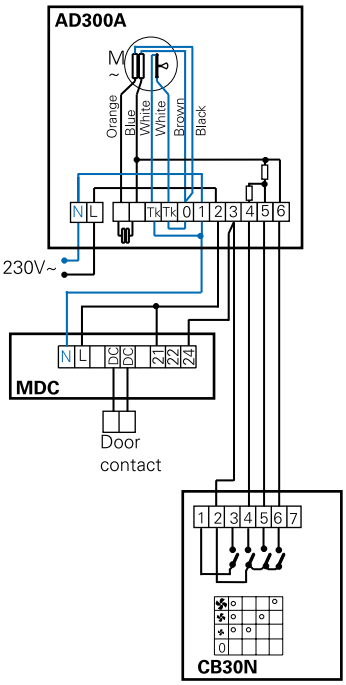


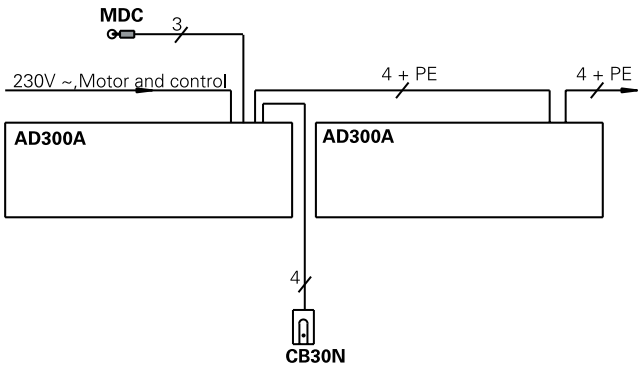


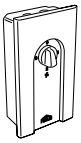


CB30N,
control box

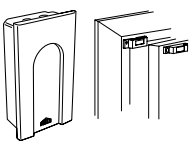
Ambient - Level 2







CB30N,
control box

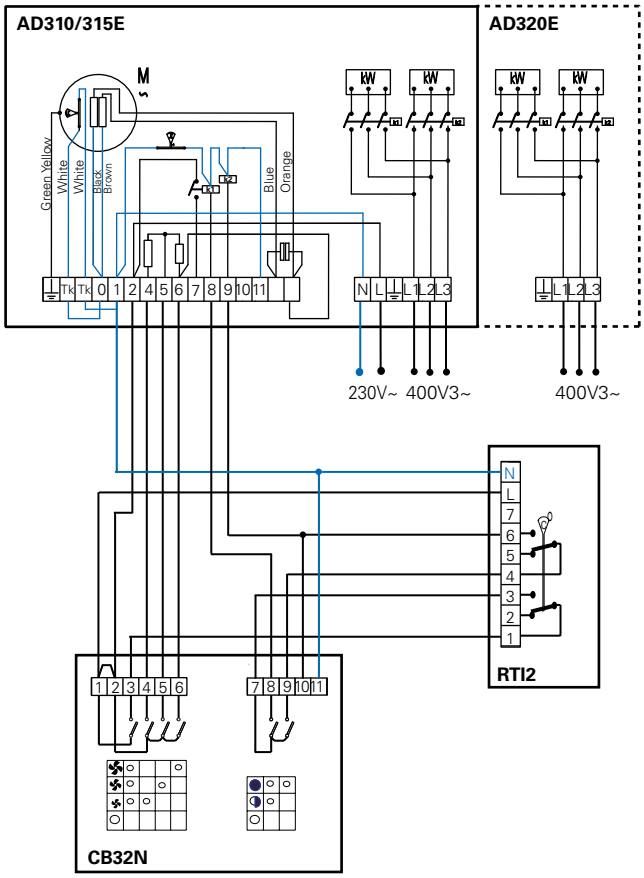


MDC, magnetic door
contact with time relay

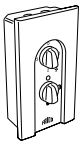
Wiring diagrams AD 300 E

Electrical control options

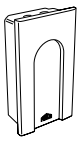
Electrical - Level 1



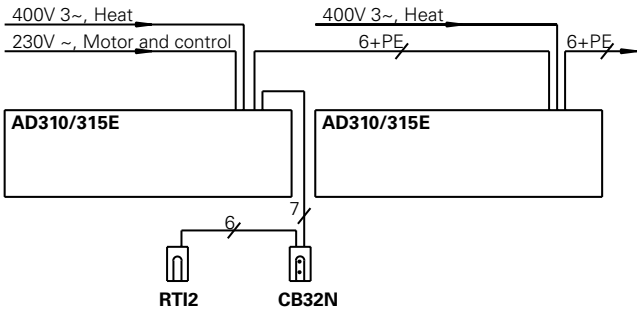
CK01E

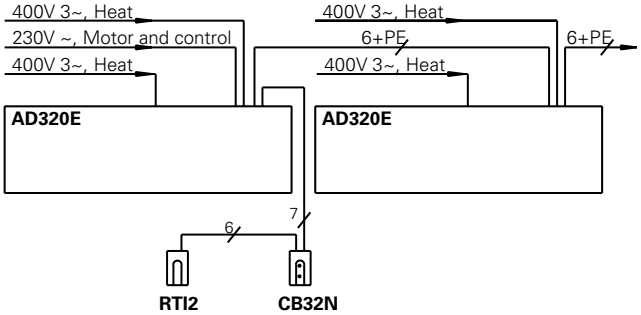


CB32N,
control box

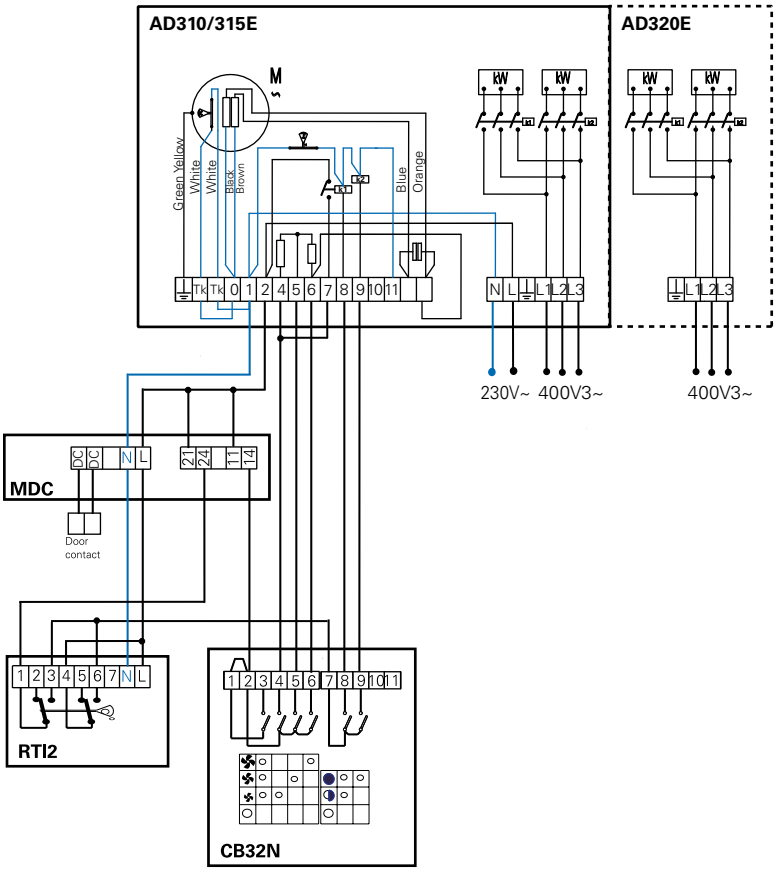


RTI2, electronic
2-step thermostat

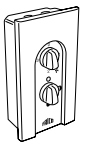




Electrical - Level 2

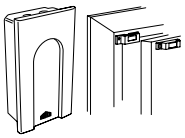


CK02E

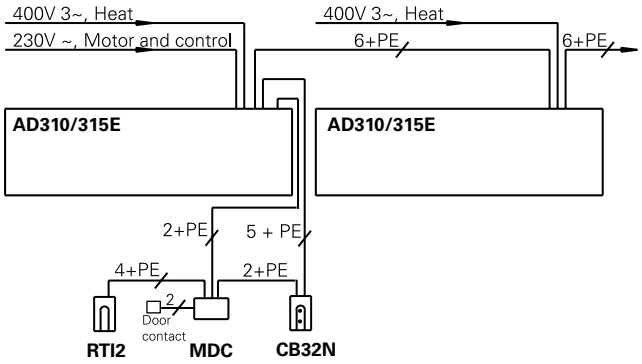


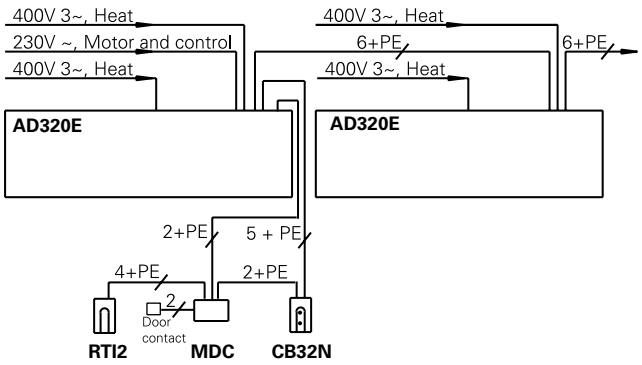
CB32N, control box

RTI2, electronic 2-step thermostat

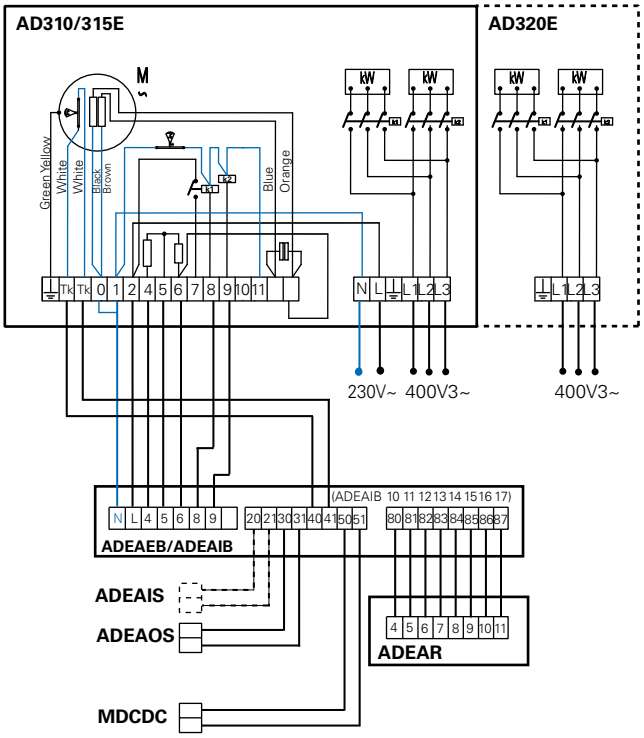


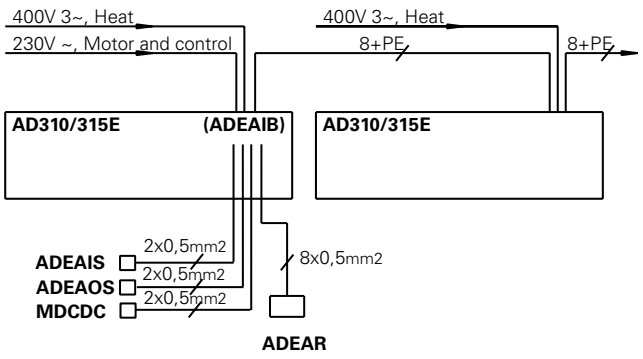
MDC, magnetic door contact with time delay

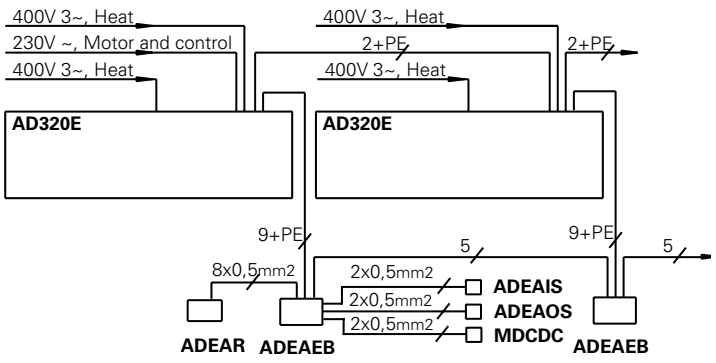




Electrical - Level 3



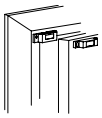




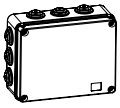
CK03

ADEAR, regulator with display unit and built-in room sensor

ADEAOS, outdoor sensor

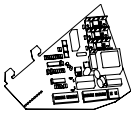


MDCDC, magnetic door contact



ADEAEB, external control board

ADEAIS, external room sensor

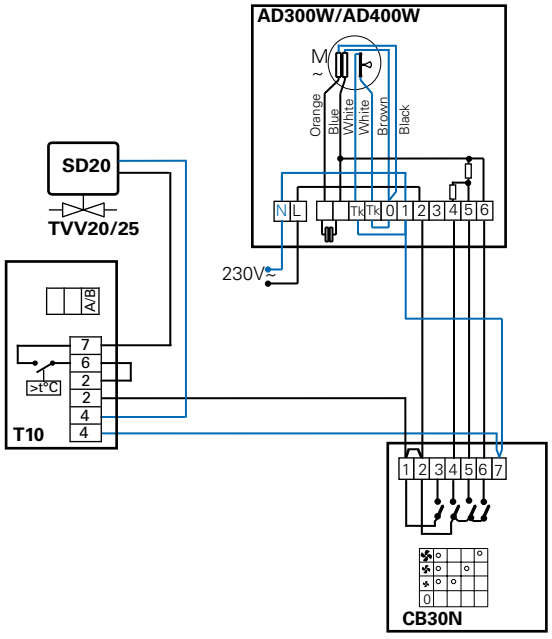


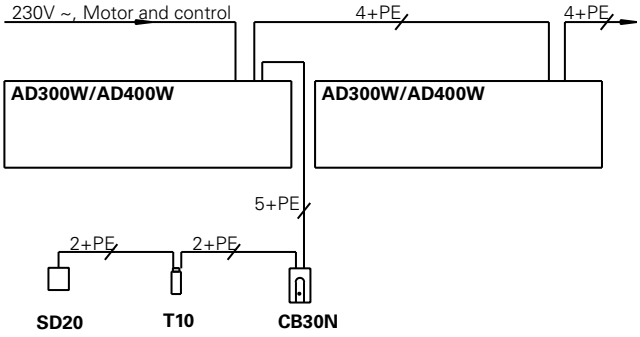
ADEAIB, internal control board for AD300/400

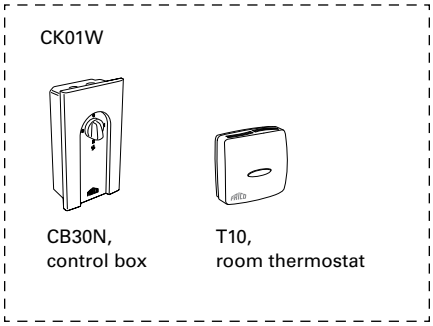
Wiring diagrams AD 300 W

Water regulation options

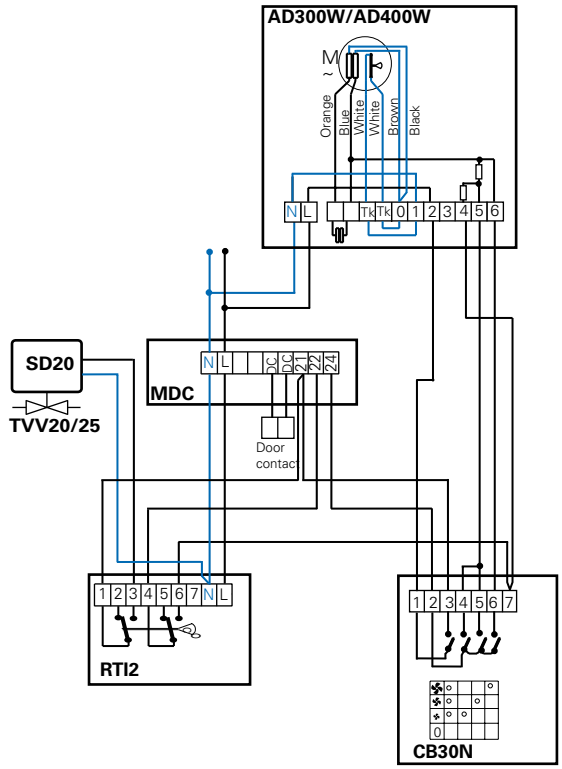
Water - Level 1

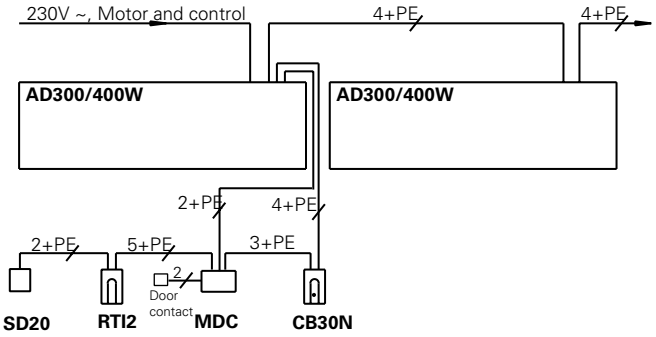


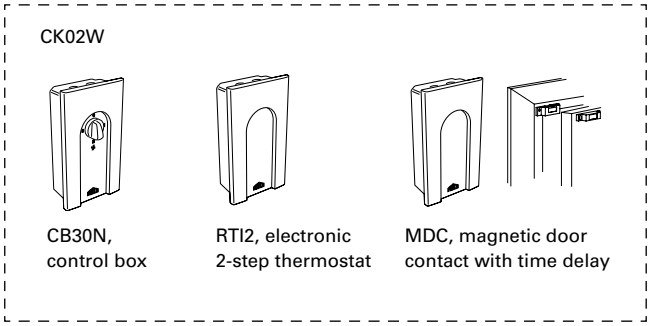




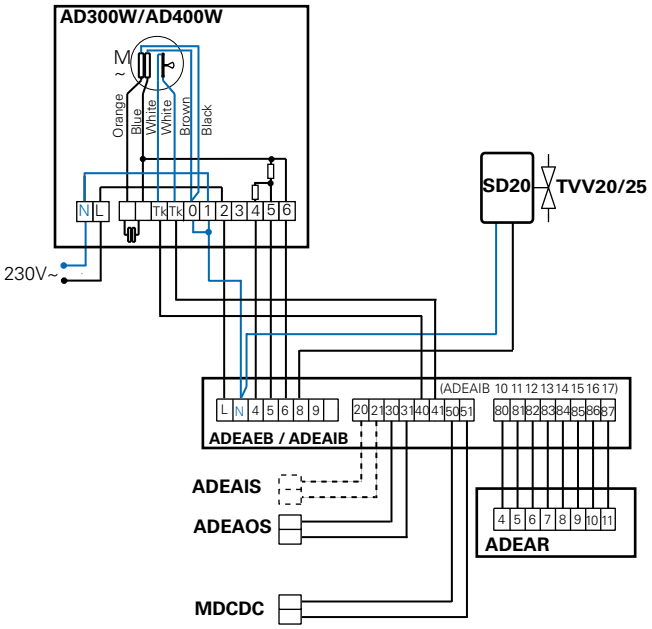
Water - Level 2

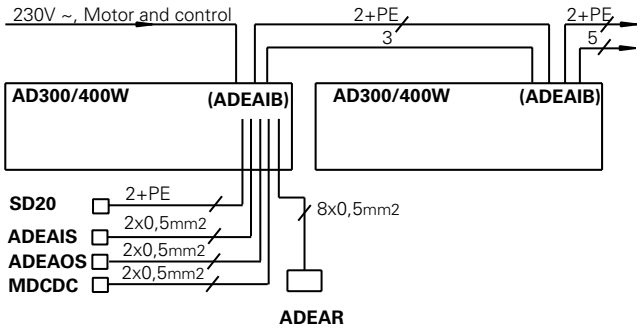


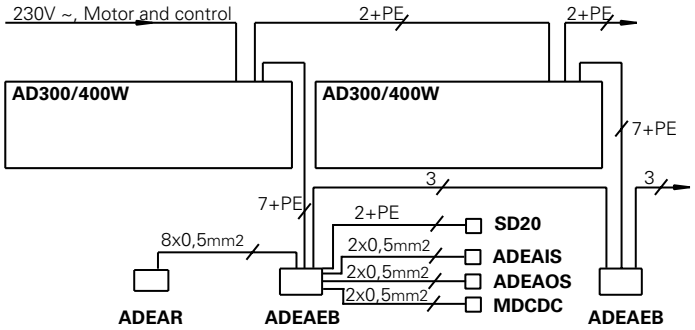




Water - Level 3



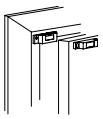




CK03

ADEAR, regulator with display unit and built-in room sensor

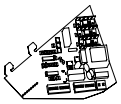
ADEAOS, outdoor sensor



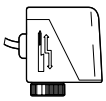
MDCDC, magnetic door contact

ADEAEB, external control board

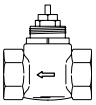
ADEAIS, external room sensor



ADEAIB, internal control board for AD300/400



SD20, actuator



TVV20/25
2-way regulation valve