NOZ_2

Technical Details

Biddle

NOZ_2

The NOZ_2 range is specifically designed for large buildings with high ceilings such as factories, retail outlets, sports centres and exhibition halls. Their innovative multi-directional design induces movement in the air around the unit ensuring warm or cool air is distributed evenly throughout the room. As a result, they are not only more effective than conventional products they are also more efficient, delivering energy savings of up to 15% compared to traditional products.

NOZ_2 WATER HEATED & AMBIENT

PAGE 5

Warm air naturally rises, NOZ_2 heaters capture it at ceiling height and optimise its distribution at floor level using the inductive effect. When used with Biddle's intelligent automatic controls, the fan speed and heatoutput are automatically adjusted to ensure a consistent, comfortable climate is maintained at floor level without any user intervention.

NOZ_2 COOLING

PAGE 24

The latest addition to the NOZ_2 range, NOZ_2 Cooling provides both heating and cooling from a single unit. NOZ_2 Cooling works in combination with a cold and warm water source. Warm air is drawn into the NOZ_2, cooled, then released and distributed evenly throughout the room using the induction effect. Condensation from the cooling process is collected by a built-in demister, and can be drained away using a gravity drain or a mechanical pump, therefore there is no restriction on where the cooling unit can be sited.

NOZ_2 WATER HEATED & AMBIENT

Technical Details

Biddle

FOR THE RIGHT NOZ2

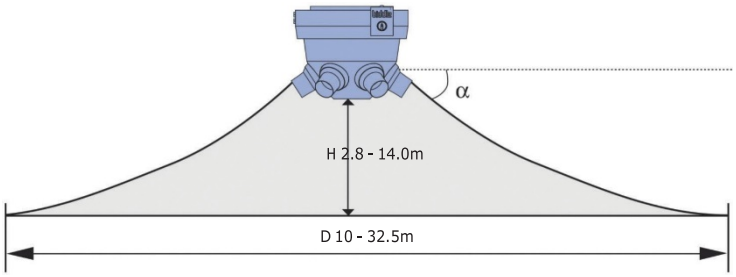
There are two models available in the NOZ2 water heated & ambient range. The models are designed to be mounted at different heights as shown in the table below.

	Mounting height[1]	Influence area
NOZ2 25	2.8 – 8.5m	100 – 400m²
NOZ2 50	3.5 – 14.0m	200 – 800m²

[1] The mounting height is measured from the bottom of the unit to the floor.

IDEAL DISCHARGE DIRECTION

To optimise the distribution of the discharged air, the nozzles can be adjusted. The ideal discharge direction depends on the influence area and the mounting height. These two factors have a significant influence on the selection of the NOZ2.



Representation of the mounting height (H) and the diameter of the heated floor area (D).

The completion of the below steps will lead to the ideal discharge direction and the correct selection of the NOZ2.

1. INFLUENCE AREA (HEATED FLOOR AREA)

Based on the dimensions of the room, the diameter (D) of the heated floor area will be determined. Due to the inducing effect of the NOZ2 a larger area will be heated than the

diameter of the targeted area.

2. MOUNTING HEIGHT

The mounting height (H) is the distance between the floor and the bottom of the unit.

3. IDEAL DISCHARGE DIRECTION

By means of the table on the next page the correct nozzle angle (α) can be selected.

4. MODEL AND NUMBER OF NOZ2 AIR HEATERS

By means of the table on the next page the NOZ2 model and the number of devices can be selected.

5. SELECTION NOZ2

The selection depends on the applied heat source (water, ambient or gas), the desired room temperature and the power consumption(kW). The final selection of the NOZ2 is based on the technical data.

DISCHARGE DIRECTION AND SELECTION

Due to the strong inductive effect, the induction flow rate is 10 times the primary air displacement and the temperature gradient is only 0.25°C per metre contrary to conventional air heaters. By applying a NOZ₂ on average 15% will be saved on the power consumption (kW) (based on ISSO 57 heat loss calculation - The Netherlands).

NOZZLE ANGLE BASED ON MOUNTING HEIGHT AND DIAMETER OF THE HEATED FLOOR AREA

D [m]	10	12.5	15	17.5	20	22.5	25	27.5	30	32.5
H [m]										
3	42	36	31	27	24	22	-	-	-	-
4	50	44	39	34	31	28	26	24	22	20
5	-	50	45	41	37	34	31	29	27	25
6	-	-	50	46	42	39	36	33	31	29
7	-	-	-	50	46	43	40	37	35	33
8	-	-	-	-	50	47	44	41	39	36
9	-	-	-	-	53	50	47	44	42	40
10	-	-	-	-	-	53	50	47	45	43
11	-	-	-	-	-	-	53	50	48	45
12	-	-	-	-	-	-	-	53	50	48
13	-	-	-	-	-	-	-	-	52	50
14	-	-	-	-	-	-	-	-	-	52

NOZ₂ 25 NOZ₂ 50

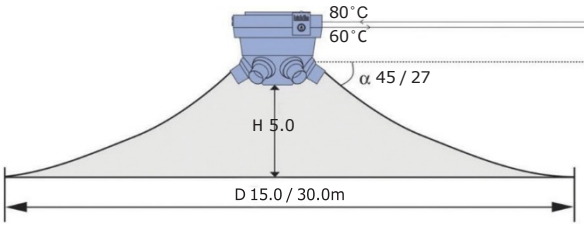
EXAMPLE NOZ₂ SELECTION

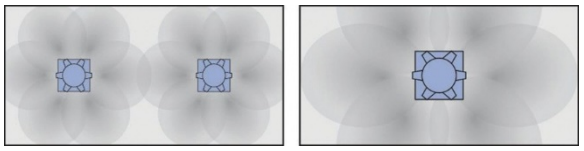
ROOM DATA:

Dimensions: 30 x 15m, height: 6m
Room temperature: 15°C
Water range: 80/60°C
Heat loss (conventional): 54kW

STEPS:

1. D = 15 or 30 (depending on NOZ₂ model)
2. H = 5m
3. α = 45 or 27(depending on NOZ₂ model)
4. 2 x NOZ₂ 25 or 1 x NOZ₂ 50
5. kW = 46 (-15% compared to conventional air heaters)





2 x NOZ₂ 25 or 1 x NOZ₂ 50

Based on the NOZ₂ technical data (with an air inlet temperature of 15°C) the below maximal heating capacities apply for each model. Because the NOZ₂ 25 with the H2 heating coil just does not meet the required power of 46 kW, the maximal heating capacity is also calculated for the H3 heating coil. To convert the H3 coil to 80/60°C the correction factor is 1,71.

- 2 x NOZ₂ 25: H2 = 42.2 kW, H3 = 72.6 kW and 1 x NOZ₂ 50: H2 = 46.7 kW

The final choice depends on more factors like the layout and function of the room and the required sound level. Based on the total overview the choice will be made between 2 x NOZ₂ 25-H3 or 1 x NOZ₂ 50-H2.

WATER HEATED & AMBIENT VERSIONS

With regard to control and mounting of the NOZ$_2$ air heater various accessories are available.

STANDARD DELIVERY

- Energy efficient EC fans (stepless control)
- Integrated isolation switch

CONTROL / OPERATION

- Automatic control incl. CHIPS technology or Basic control

CONTROL ACCESSORIES AUTOMATIC CONTROL

- b-touch control panel
- Room temperature sensor
- Water-side control: valve and actuator (not in ambient version)
- Biddle low-voltage cable (35m)

BASIC CONTROL

- b-control: potentiometer (0-10 Volt)
- Optional: room thermostat

INSTALLATION

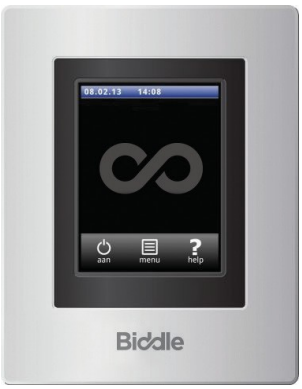
There are two options for the installation of the NOZ$_2$:

- Optional: suspension frame for quick and easy installation
- Via M8 threaded rods

OPTIONAL

- Combination of recirculation with ventilation (see ventilation information sheet)
- Plastic caps to cover maximum 2 nozzles
- Separate flange set for hot water connection

Suspension Frame



b-touch Control Panel

TYPES OF WATER COILS

STANDARD: H2 (2-row), H3 (3-row) and H6 (6-row)

The NOZ$_2$ with automatic control can be provided for many water ranges (maximum water temperature 120°C) The discharge temperature is limited by the control to 50°C. In the case of an uncontrolled basic model, consideration should be given to the maximum temperatures of 90/70°C for the H2, 80/60°C for the H3 and 60/40 °C for the H6.

ON REQUEST: H1p (1-row)

Suitable for high water temperatures (130/110°C, 150/130°C and 175/155°C) and for high pressure (maximum 23.8 bar). Delivered with welded flanges.

VENTILATION VERSION

NOZ$_2$ is available in a ventilation model in order to supply a room with fresh outside air.

STANDARD DELIVERY

- Frost-protection thermostat:
  - automatic control: installed and wired
  - basic control: installed, but not wired

VENTILATION ACCESSORIES

- Roof cap
- Duct sections: length 0.5 - 1 and 1.5m
- Filter module: filter class G2

Roof Cap

AUTOMATIC CONTROL

- Damper section incl. installed and wired servomotor is necessary

3-way Damper Section

BASIC CONTROL

- Damper section:
  - excl. servomotor
  - incl. servomotor with pull-back spring (not wired)
  - incl. servomotor without pull-back-spring return (not wired)

1-way Damper Section

TYPES OF DAMPER SECTIONS

3-way: this is used in a combination of ventilation (supply of outside air) and recirculation (intake of inside air).
The proportion of these two air flows can, if required, be controlled. Even in times of frost danger, the recirculation function may be used to heat the room.

1-way: this is used in assemblies involving 100% ventilation, so that no moisture loss or heat loss occurs when the air heater is not operating.

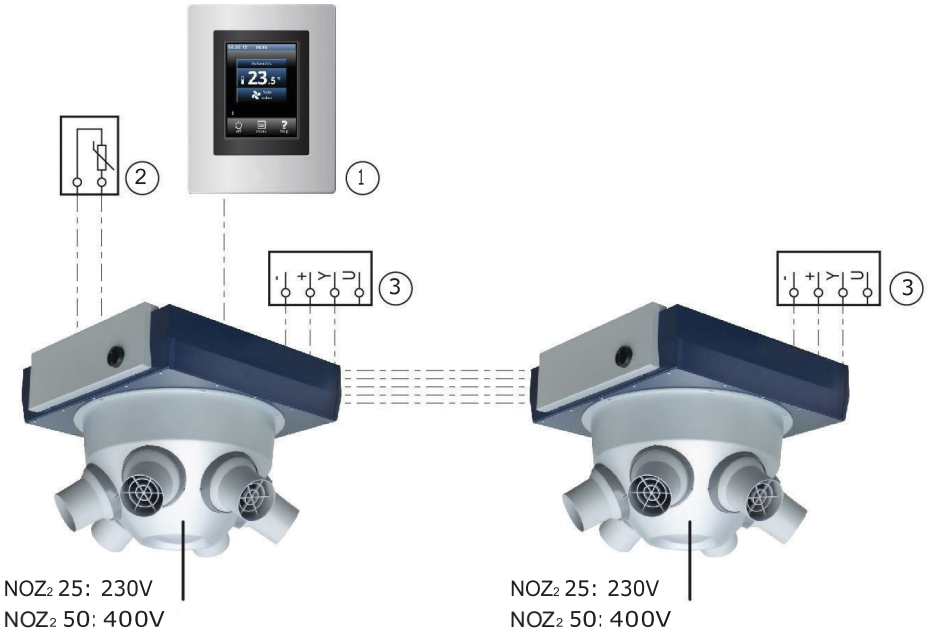
Filter Module

ELECTRICAL CONNECTIONS

The NOZ$_2$ is delivered as standard with a built in isolation switch, to which the 230V or 400Vsupply cable can be connected.

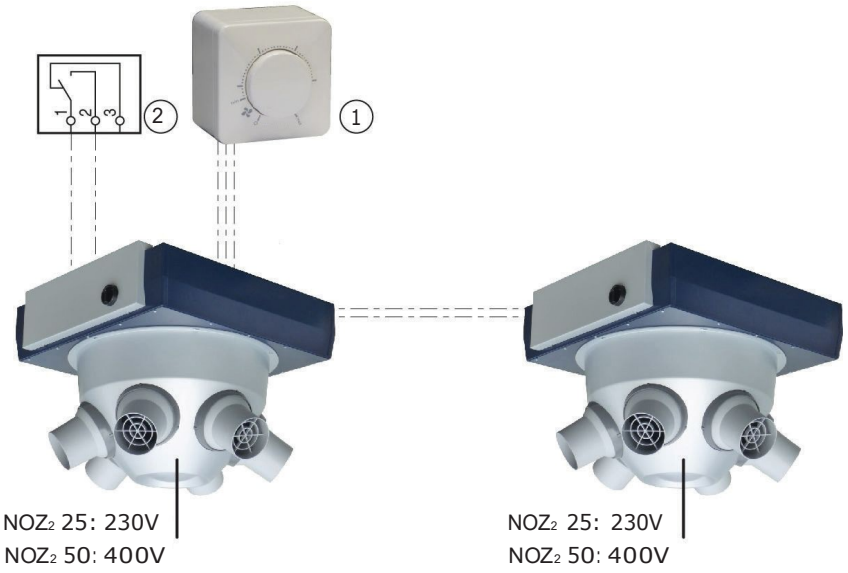
AUTOMATIC CONTROL

1. b-touch control panel
2. Room temperature sensor
3. Water-side control



BASIC CONTROL

1. b-control regulator
2. Room thermostat (optional)



SPECIFICATIONS

CASING

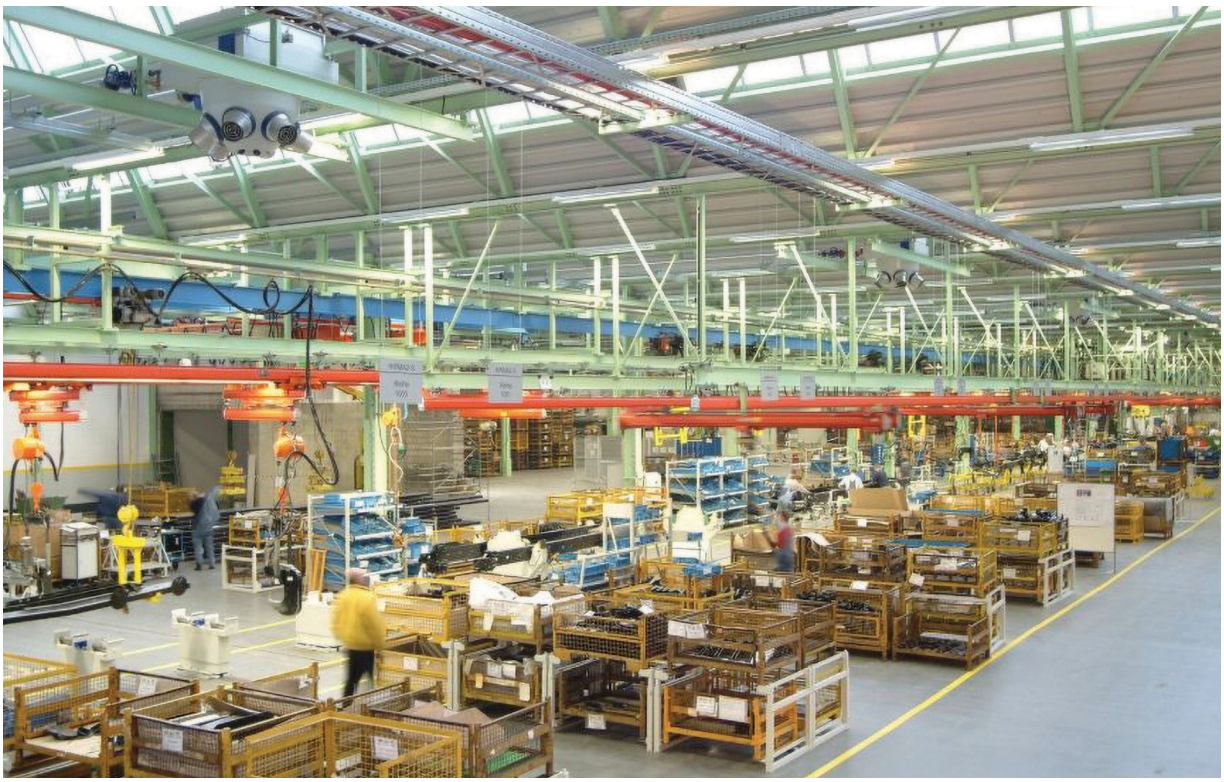
The casing of the air heater is made of zinc plated sheet steel and has an inspection panelat the side. The cone, nozzles and the ring are made of plastic. The unit is delivered as standard in two colours: in RAL 5011/RAL9006 (steel blue/aluminium) or in RAL 9006 (aluminium). Other RAL colours are available at an extra charge.

MOTOR / FAN ASSEMBLY

The fan is made up of a plastic (NOZ$_2$ 25) or an aluminium (NOZ$_2$ 50) impeller and an external rotor motor with EC technology. If overheated, the motor is protected by thermal contacts, which will break the electrical circuit.

HEATING COIL

The high efficient heating coils are made up of 3/8" copper pipes and aluminium fins. The water connections for the NOZ$_2$ 25 are G 3/4" and for the NOZ$_2$ 50 G1". These connections are located on the side of the unit.



NOZ2 25-H2

Mounting height	m	2.8 - 8.5				
Influence area	m²	100 - 400				
Electrical supply	V/ph/Hz	230/1/50				
Max. input current	A	1.3				
Max. input power	kW	0.28				
Max. specific fan power	W/l/s	0.30				
Weight	kg	37.0				
Water range	°C	80/60				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	678	1184	1912	2649	3351
Power consumption	kW	0.10	0.20	0.50	1.00	1.80
Sound pressure level at 5m	dB(A)	20	30	42	51	57
Air inlet temperature	°C			-10		
Heating capacity	kW	11.8	16.9	22.6	27.2	30.9
Discharge air temperature	°C	36.3	28.2	21.6	17.4	14.6
Water flow rate	l/h	515	745	990	1195	1355
Water pressure drop	kPa	1	2	3.4	4.8	6
Air inlet temperature	°C			0		
Heating capacity	kW	10	14.5	19.3	23.3	26.4
Discharge air temperature	°C	40.9	33.8	28	24.3	21.8
Water flow rate	l/h	440	635	845	1020	1160
Water pressure drop	kPa	0.8	1.5	2.6	3.6	4.5
Air inlet temperature	°C			10		
Heating capacity	kW	8.4	12	16.1	19.4	22.1
Discharge air temperature	°C	45.3	39.2	34.2	31	28.9
Water flow rate	l/h	365	530	705	850	965
Water pressure drop	kPa	0.6	1.1	1.8	2.6	3.3
Air inlet temperature	°C			15		
Heating capacity	kW	7.5	10.9	14.6	17.5	19.9
Discharge air temperature	°C	47.5	41.8	37.2	34.3	32.3
Water flow rate	l/h	330	475	640	770	875
Water pressure drop	kPa	0.5	0.9	1.5	2.1	2.7
Air inlet temperature	°C			18		
Heating capacity	kW	7.1	10.2	13.6	16.4	18.6
Discharge air temperature	°C	48.7	43.3	39	36.3	34.4
Water flow rate	l/h	310	445	595	720	815
Water pressure drop	kPa	0.4	0.8	1.3	1.9	2.4
Air inlet temperature	°C			20		
Heating capacity	kW	6.7	9.7	13	15.7	17.8
Discharge air temperature	°C	49.5	44.4	40.2	37.5	35.8
Water flow rate	l/h	295	425	570	685	780
Water pressure drop	kPa	0.4	0.7	1.2	1.7	2.2

NOZ2 25-H3

Mounting height	m	2.8 - 8.5				
Influence area	m²	100 - 400				
Electrical supply	V/ph/Hz	230/1/50				
Max. input current	A	1.3				
Max. input power	kW	0.28				
Max. specific fan power	W/l/s	0.31				
Weight	kg	39				
Water range	°C	60/40				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	594	1156	1853	2576	3284
Power consumption	kW	0.10	0.20	0.50	1.00	1.80
Sound pressure level at 5m	dB(A)	20	30	42	51	57
Air inlet temperature	°C			-10		
Heating capacity	kW	10.1	16.3	22.2	27.2	31.4
Discharge air temperature	°C	35.6	27.7	22	18.2	15.5
Water flow rate	l/h	440	710	965	1180	1360
Water pressure drop	kPa	0.9	2	3.6	5.2	6.7
Air inlet temperature	°C			0		
Heating capacity	kW	8.2	13.2	18	22	25.3
Discharge air temperature	°C	38.2	31.6	26.8	23.6	21.3
Water flow rate	l/h	355	570	780	955	1100
Water pressure drop	kPa	0.6	1.4	2.4	3.5	4.5
Air inlet temperature	°C			10		
Heating capacity	kW	6.3	10.2	13.8	16.9	19.4
Discharge air temperature	°C	40.6	35.2	31.4	28.8	27
Water flow rate	l/h	275	440	600	730	840
Water pressure drop	kPa	0.4	0.9	1.5	2.2	2.8
Air inlet temperature	°C			15		
Heating capacity	kW	5.4	8.7	11.8	14.4	16.5
Discharge air temperature	°C	41.7	36.9	33.5	31.3	29.7
Water flow rate	l/h	235	375	510	625	715
Water pressure drop	kPa	0.3	0.6	1.1	1.6	2.1
Air inlet temperature	°C			18		
Heating capacity	kW	4.9	7.8	10.6	12.9	14.8
Discharge air temperature	°C	42.3	37.9	34.8	32.7	31.3
Water flow rate	l/h	215	340.0	460	560	640
Water pressure drop	kPa	0.2	0.5	0.9	1.3	1.7
Air inlet temperature	°C			20		
Heating capacity	kW	4.5	7.2	9.8	11.9	13.7
Discharge air temperature	°C	42.7	38.5	35.6	33.7	32.3
Water flow rate	l/h	195	315	425	515	590
Water pressure drop	kPa	0.2	0.5	0.8	1.1	1.5

NOZ2 25-H6

Mounting height	m	2.8 - 8.5				
Influence area	m^2	100 - 400				
Electrical supply	V/ph/Hz	230/1 /50				
Max. input current	A	1.3				
Max. input power	kW	0.28				
Max. specific fan power	W/l/s	0.36				
Weight	kg	47				
Water range (heating)	°C	50/30				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m^3/h	368	952	1579	2212	2794
Power consumption	kW	0.10	0.20	0.30	0.70	1.30
Sound pressure level at 5m	dB(A)	17	29	41	50	55
Air inlet temperature	°C			-10		
Heating capacity	kW	7.6	17.1	25.6	32.9	38.8
Discharge air temperature	°C	44.7	38	33.2	29.7	27.1
Water flow rate	l/h	325	740	1105	1420	1680
Water pressure drop	kPa	1	4.2	8.7	13.8	18.6
Air inlet temperature	°C			0		
Heating capacity	kW	6	13.4	20	25.6	30.2
Discharge air temperature	°C	44.8	39	35	32.1	29.9
Water flow rate	l/h	255	580	865	1105	1305
Water pressure drop	kPa	0.6	2.7	5.6	8.7	11.8
Air inlet temperature	°C			10		
Heating capacity	kW	4.4	9.8	14.5	18.6	21.8
Discharge air temperature	°C	44.6	39.7	36.4	34.1	32.4
Water flow rate	l/h	190	425	630	805	945
Water pressure drop	kPa	0.4	1.5	3.1	4.9	6.5
Air inlet temperature	°C			15		
Heating capacity	kW	3.7	8.1	11.9	15.1	17.7
Discharge air temperature	°C	44.2	39.8	36.9	34.9	33.5
Water flow rate	l/h	160	350	515	650	765
Water pressure drop	kPa	0.3	1.1	2.2	3.3	4.5
Air inlet temperature	°C			18		
Heating capacity	kW	3.2	7	10.2	13	15.2
Discharge air temperature	°C	43.9	39.7	37.1	35.3	34
Water flow rate	l/h	140	305	440	560	655
Water pressure drop	kPa	0.2	0.8	1.7	2.5	3.4
Air inlet temperature	°C			20		
Heating capacity	kW	2.9	6.3	9.1	11.5	13.5
Discharge air temperature	°C	43.6	39.6	37.2	35.5	34.3
Water flow rate	l/h	125	270	395	500	580
Water pressure drop	kPa	0.2	0.7	1.3	2.1	2.7

NOZ2 50-H2

Mounting height	m	3.5 - 14				
Influence area	m²	200 - 800				
Electrical supply	V/ph/Hz	400/3/50				
Max. input current	A	2.3				
Max. input power	kW	1.39				
Max. specific fan power	W/l/s	0.59				
Weight	kg	64				
Water range (heating)	°C	80/60				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	1248	3048	4867	6703	8456
Power consumption	kW	0.20	0.50	0.90	1.80	3.10
Sound pressure level at 5m	dB(A)	22	39	51	60	66
Air inlet temperature	°C			-10		
Heating capacity	kW	22.1	39.4	51.7	61.6	69.4
Discharge air temperature	°C	37.3	24.5	18.3	14.5	11.9
Water flow rate	l/h	970	1725	2265	2700	3045
Water pressure drop	kPa	0.9	2.6	4.3	5.9	7.4
Air inlet temperature	°C			0		
Heating capacity	kW	18.8	33.6	44.2	52.6	59.4
Discharge air temperature	°C	41.8	30.5	25.1	21.7	19.4
Water flow rate	l/h	825	1475	1935	2305	2605
Water pressure drop	kPa	0.7	1.9	3.2	4.4	5.5
Air inlet temperature	°C			10		
Heating capacity	kW	15.7	28	36.8	43.9	49.5
Discharge air temperature	°C	46.1	36.4	31.7	28.8	26.8
Water flow rate	l/h	690	1230	1615	1925	2170
Water pressure drop	kPa	0.5	1.4	2.3	3.2	4
Air inlet temperature	°C			15		
Heating capacity	kW	14.2	25.3	33.2	39.6	44.7
Discharge air temperature	°C	48.1	39.2	34.9	32.2	30.4
Water flow rate	l/h	620	1110	1455	1735	1960
Water pressure drop	kPa	0.4	1.1	1.9	2.6	3.3
Air inlet temperature	°C			18		
Heating capacity	kW	13.3	23.7	31.1	37	41.8
Discharge air temperature	°C	49.3	40.9	36.8	34.3	32.6
Water flow rate	l/h	580	1035	1360	1625	1835
Water pressure drop	kPa	0.4	1	1.7	2.3	2.9
Air inlet temperature	°C			20		
Heating capacity	kW	12.7	22.6	29.7	35.4	39.9
Discharge air temperature	°C	50.1	42	38.1	35.7	34
Water flow rate	l/h	555	990	1300	1550	1750
Water pressure drop	kPa	0.3	0.9	1.5	2.1	2.7

NOZ2 50-H3

Mounting height	m	3.5 - 14				
Influence area	m²	200 - 800				
Electrical supply	V/ph/Hz	400/3/50				
Max. input current	A	2.3				
Max. input power	kW	1.39				
Max. specific fan power	W/l/s	0.60				
Weight	kg	67				
Water range (heating)	°C	60/40				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	1210	2982	4749	6604	8316
Power consumption	kW	0.20	0.40	0.90	1.70	3.00
Sound pressure level at 5m	dB(A)	22	39	51	60	66
Air inlet temperature	°C			-10		
Heating capacity	kW	20.6	38.8	51.9	63	71.6
Discharge air temperature	°C	35.4	24.7	19.2	15.4	13
Water flow rate	l/h	895	1680	2250	2735	3105
Water pressure drop	kPa	1.1	3.4	5.9	8.4	10.6
Air inlet temperature	°C			0		
Heating capacity	kW	16.7	31.3	41.9	50.9	57.8
Discharge air temperature	°C	38.1	29.1	24.4	21.3	19.2
Water flow rate	l/h	725	1360	1820	2205	2510
Water pressure drop	kPa	0.7	2.3	4	5.7	7.2
Air inlet temperature	°C			10		
Heating capacity	kW	12.9	24.1	32.2	39.1	44.4
Discharge air temperature	°C	40.6	33.2	29.5	27	25.3
Water flow rate	l/h	560	1045	1400	1695	1925
Water pressure drop	kPa	0.5	1.4	2.5	3.5	4.4
Air inlet temperature	°C			15		
Heating capacity	kW	11.1	20.6	27.5	33.3	37.8
Discharge air temperature	°C	41.7	35.2	31.9	29.7	28.3
Water flow rate	l/h	480	895	1195	1445	1640
Water pressure drop	kPa	0.3	1.1	1.8	2.6	3.3
Air inlet temperature	°C			18		
Heating capacity	kW	10	18.5	24.7	29.8	33.9
Discharge air temperature	°C	42.3	36.3	33.3	31.3	30
Water flow rate	l/h	435	805	1070	1295	1470
Water pressure drop	kPa	0.3	0.9	1.5	2.1	2.7
Air inlet temperature	°C			20		
Heating capacity	kW	9.3	17.1	22.8	27.5	31.2
Discharge air temperature	°C	42.7	37	34.2	32.4	31.1
Water flow rate	l/h	400	745	990	1195	1355
Water pressure drop	kPa	0.3	0.8	1.3	1.8	2.3

NOZ2 50-H6

Mounting height	m	3.5 - 14				
Influence area	m²	200 - 800				
Electrical supply	V/ph/Hz	400/3/50				
Max. input current	A	2.3				
Max. input power	kW	1.39				
Max. specific fan power	W/l/s	0.67				
Weight	kg	76				
Water range (heating)	°C	50/30				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	1055	2621	4255	5914	7448
Power consumption	kW	0.20	0.40	0.70	1.30	2.20
Sound pressure level at 5m	dB(A)	22	38	50	59	65
Air inlet temperature	°C			-10		
Heating capacity	kW	20.8	44.4	64	80.8	94.3
Discharge air temperature	°C	42.5	35.2	30.1	26.4	23.8
Water flow rate	l/h	900	1920	2765	3490	4075
Water pressure drop	kPa	2	7.8	15.2	23.1	30.7
Air inlet temperature	°C			0		
Heating capacity	kW	16.3	34.7	49.9	62.9	73.3
Discharge air temperature	°C	42.9	36.6	32.5	29.4	27.2
Water flow rate	l/h	705	1500	2155	2715	3165
Water pressure drop	kPa	1.3	5	9.6	14.7	19.4
Air inlet temperature	°C			10		
Heating capacity	kW	12.1	25.3	36.2	45.5	52.9
Discharge air temperature	°C	42.9	37.7	34.4	32.1	30.4
Water flow rate	l/h	525	1095	1565	1965	2285
Water pressure drop	kPa	0.7	2.8	5.4	8.1	10.7
Air inlet temperature	°C			15		
Heating capacity	kW	10	20.7	29.5	36.8	42.8
Discharge air temperature	°C	42.7	38.1	35.2	33.2	31.8
Water flow rate	l/h	435	895	1275	1590	1850
Water pressure drop	kPa	0.5	2	3.7	5.6	7.3
Air inlet temperature	°C			18		
Heating capacity	kW	8.8	17.9	25.4	31.6	36.6
Discharge air temperature	°C	42.6	38.2	35.6	33.8	32.5
Water flow rate	l/h	380	775	1095	1365	1585
Water pressure drop	kPa	0.4	1.5	2.8	4.2	5.5
Air inlet temperature	°C			20		
Heating capacity	kW	8	16	22.6	28.1	32.5
Discharge air temperature	°C	42.4	38.1	35.7	34.1	32.9
Water flow rate	l/h	345	695	975	1215	1405
Water pressure drop	kPa	0.3	1.2	2.3	3.4	4.4

NOZ2 25-A

Electrical supply	V/ph/Hz	230/1/50				
Max. input current	A	1.3				
Max. input power	kW	0.28				
Max. specific fan power	W/l/s	0.31				
Weight	kg	29				
Speed		2V	4V	6V	8V	10V
Air volume	m^3/h	665	1154	1874	2600	3291
Power consumption	kW	0.01	0.04	0.10	0.22	0.41
Sound pressure level at 5m	dB(A)	20	30	42	51	57

NOZ2 50-A

Electrical supply	V/ph/Hz	400/3/50				
Max. input current	A	1.3				
Max. input power	kW	1.39				
Max. specific fan power	W/l/s	0.60				
Weight	kg	58				
Speed		2V	4V	6V	8V	10V
Air volume	m^3/h	1211	2995	4791	6602	8319
Power consumption	kW	0.03	0.14	0.43	1.02	1.94
Sound pressure level at 5m	dB(A)	22	39	51	60	66

CORRECTION FACTORS HEATING CAPACITY

The heating capacities stated in the tables are based on the following water ranges:

- H2: 80/60°C
- H3: 60/40°C
- H6: 50/30°C

The air inlet temperature is 15°C. If water and air inlet temperatures differ, the maximal heating capacity is to be multiplied by the correction factors from the tables below.

These are based on the NOZ2 25, the data for the NOZ2 50 do notdiffer significantly.

LPHW H2	Air inlet temperature							
	-10 °C	-5 °C	0 °C	+5 °C	+10 °C	+15 °C	+18 °C	+20 °C
110/90 °C[1]	2.21	2.1	1.98	1.87	1.75	1.64	1.57	1.53
100/80 °C[1]	2.0	1.88	1.77	1.65	1.54	1.43	1.36	1.32
90/70 °C	1.78	1.66	1.55	1.44	1.32	1.22	1.15	1.11
82/71 °C	1.75	1.64	1.52	1.41	1.3	1.19	1.13	1.08
80/60 °C	1.55	1.44	1.33	1.22	1.11	1.0	0.94	0.89
70/50 °C	1.33	1.22	1.11	1.0	0.89	0.78	0.72	0.68
60/40 °C	1.1	0.99	0.89	0.78	0.67	0.57	0.51	0.47
LPHW H3								
90/70°C[1]	3.0	2.81	2.61	2.43	2.24	2.06	1.95	1.88
80/60 °C	2.63	2.44	2.25	2.07	1.89	1.71	1.6	1.53
70/50 °C	2.27	2.08	1.89	1.71	1.53	1.35	1.25	1.18
60/40 °C	1.9	1.71	1.53	1.35	1.18	1.0	0.9	0.83
LPHW H6								
70/50 °C[1]	3.15	2.89	2.64	2.39	2.15	1.91	1.77	1.68
60/40 °C	2.68	2.42	2.18	1.93	1.7	1.46	1.32	1.23
50/30 °C	2.2	1.96	1.71	1.47	1.24	1.0	0.86	0.76

[1]Water range not suitable in case of an uncontrolled basic model.
Automatic control: the discharge temperature is limited on 50°C.

With the ventilation model, air volume decreases (due to modules and ductwork).
The following guideline may be used:

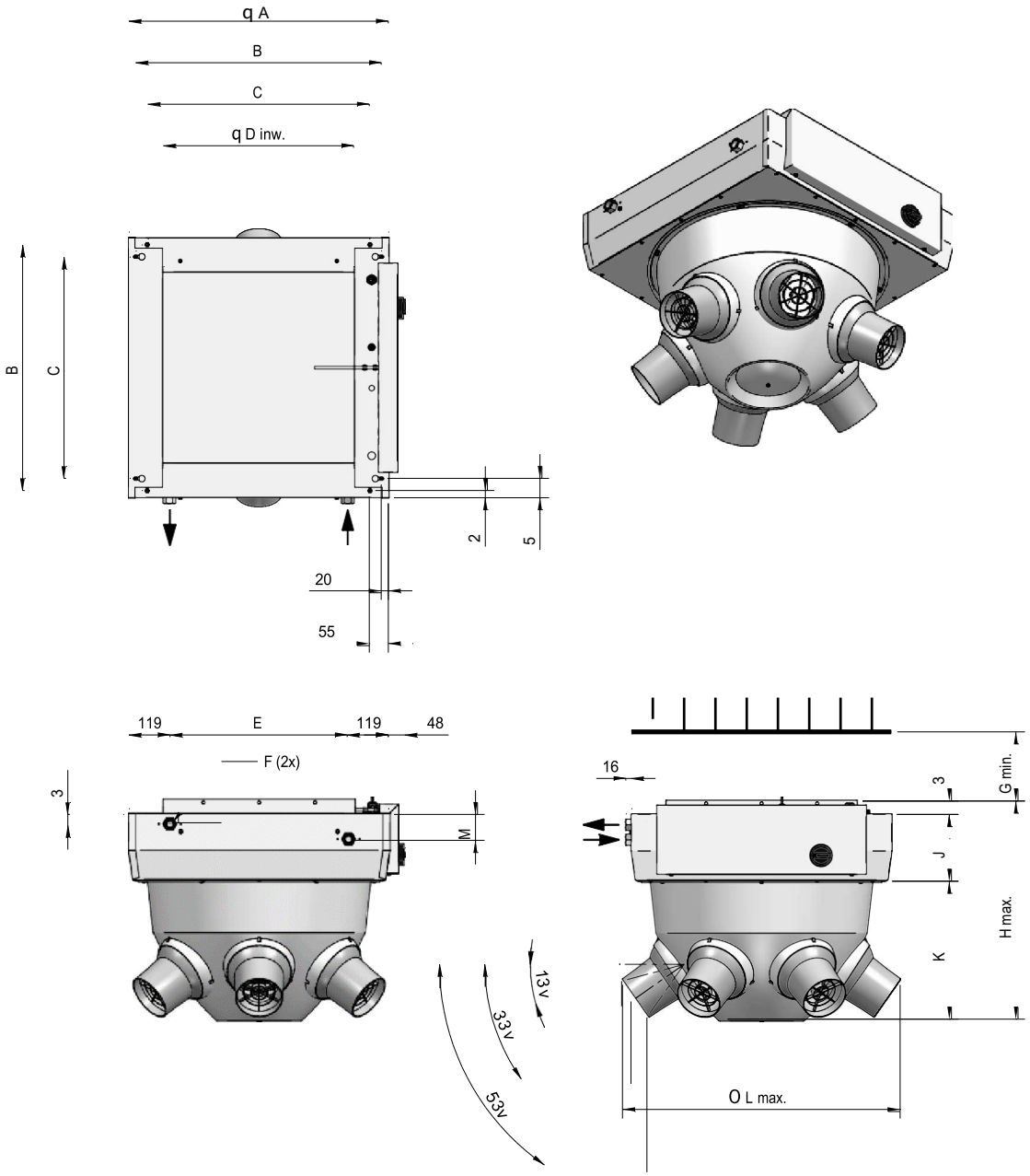
- 1 module = 15% less than the table values
- 2 modules and duct work = 20% less than the table values

A decrease in air volume also leads to a decrease in heating capacity.
Using the formula, you may calculate the new heating capacity.

- 1 module = Qnew = 0.93 x Qtable value
- 2 modules and duct work = Qnew = 0.90 x Qtable value

If circumstances differ from those described here, such as different water temperatures or more than one unit in a single room, please do not hesitateto ask for our advice.

NOZ2 WATER HEATED & AMBIENT



All measurements are in mm

	A	B	C	D	E	F	G	H	J	K	L	M
NOZ2 25-A/H2/H3	750.0	710.0	640.0	550.0	512.0	G 3/4"	200.0	636.0	193.0	404.0	803.0	75.0
NOZ2 25-H6	750.0	710.0	640.0	550.0	512.0	G 3/4"	200.0	696.0	253.0	404.0	803.0	140.0
NOZ2 50-A/H2/H3	975.0	935.0	865.0	775.0	737.0	G 1"	300.0	793.0	249.0	505.0	1016.0	75.0
NOZ2 50-H6	975.0	935.0	865.0	775.0	737.0	G 1"	300.0	821.0	277.0	505.0	1016.0	140.0

NOZ$_2$ COOLING

Technical Details

Biddle

COOLING & CHANGE-OVER VERSIONS

With regard to control and mounting of the NOZ$_2$ cooling various accessories are available.

STANDARD DELIVERY

- Energy efficient EC fans (stepless control)
- Integrated isolation switch
- Integrated condensation dropcatcher tray

CONTROL / OPERATION

- Automatic control incl. CHIPS technology or
- Basic control

CONTROL ACCESSORIES AUTOMATIC CONTROL

- b-touch control panel
- Room temperature sensor
- Water-side control: valve and actuator (not in ambient version)
- Biddle low-voltage cable (35m)

BASIC CONTROL

- b-control: potentiometer (0-10 Volt)
- Optional: room thermostat

INSTALLATION

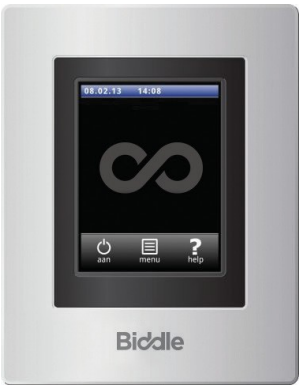
There are two options for the installation of the NOZ$_2$ cooling:

- Optional: suspension frame for quick and easy installation
- Via M8 threaded rods

OPTIONAL

- Combination of recirculation with ventilation (see ventilation information sheet)
- Plastic caps to cover maximum 2 nozzles
- Separate flange set for hot water connection
- Condensate pump

Suspension Frame



b-touch Control Panel

VENTILATION VERSION

NOZ_2 cooling is available in a ventilation model in order to supply a room with fresh outside air.

STANDARD DELIVERY

- Frost-protection thermostat
  - automatic control: installed and wired
  - basic control: installed, but not wired

VENTILATION ACCESSORIES

- Roof cap
- Duct sections: length 0.5 - 1 and 1.5m
- Filter module: filter class G2

Roof Cap

AUTOMATIC CONTROL

- Damper section incl. installed and wired servomotor is necessary

3-way Damper Section

BASIC CONTROL

- Damper section:
  - excl. servomotor
  - incl. servomotor with pull-back spring (not wired)
  - incl. servomotor without pull-back-spring return (not wired)

1-way Damper Section

TYPES OF DAMPER SECTIONS

3-way: this is used in a combination of ventilation (supply of outside air) and recirculation (intake of inside air).
The proportion of these two air flows can, if required, be controlled. Even in times of frost danger, the recirculation function may be used to heat the room.

1-way: this is used in assemblies involving 100% ventilation, so that no moisture or heat loss occurs when the unit is not operating.

Filter Module

NOZ2 25-C6

Mounting height	m	2.8 - 8.5				
Influence area	m²	100 - 400				
Electrical supply	V/ph/Hz	230/1+N/50				
Max. input current	A	1.3				
Max. input power	kW	0.29				
Max. specific fan power	W/l/s	0.32				
Weight	kg	83				
Water range	°C	6/12				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	443.0	1088.0	1785.0	2494.0	3215.0
Power consumption	kW	0.100	0.100	0.100	0.200	0.300
Sound pressure level at 5m	dB(A)	16.0	31.0	43.0	52.0	59.0
Air inlet temperature	°C			27		
Cooling capacity	kW	3.9	8.1	11.4	14.2	16.5
Discharge air temperature	°C	8.9	11.2	12.8	14	14.9
Water flow rate	l/h	562.0	1154.0	1637.0	2028.0	2360.0
Water pressure drop	kPa	1.4	5.2	9.9	14.7	19.3
Condensate water	l/h	1.9	3.5	4.5	5.1	5.3

NOZ2 50-C6

Mounting height	m	3.5 - 14.0				
Influence area	m²	200 - 800				
Electrical supply	V/ph/Hz	400/3+N/50				
Max. input current	A	2.2				
Max. input power	kW	1.34				
Max. specific fan power	W/l/s	0.6				
Weight	kg	134				
Water range	°C	6/12				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	1157.0	3039.0	4908.0	6454.0	8023.0
Power consumption	kW	0.100	0.200	0.300	0.700	1.400
Sound pressure level at 5m	dB(A)	27.0	42.0	53.0	62.0	68.0
Air inlet temperature	°C			27		
Cooling capacity	kW	9.4	19.3	26.4	31.4	35.5
Discharge air temperature	°C	10.1	12.8	14.3	15.2	16.0
Water flow rate	l/h	1342.0	2771.0	3783.0	4493.0	5092.0
Water pressure drop	kPa	1.7	6.3	11.1	15.2	19.2
Condensate water	l/h	4.2	7.4	8.7	9.4	9.5

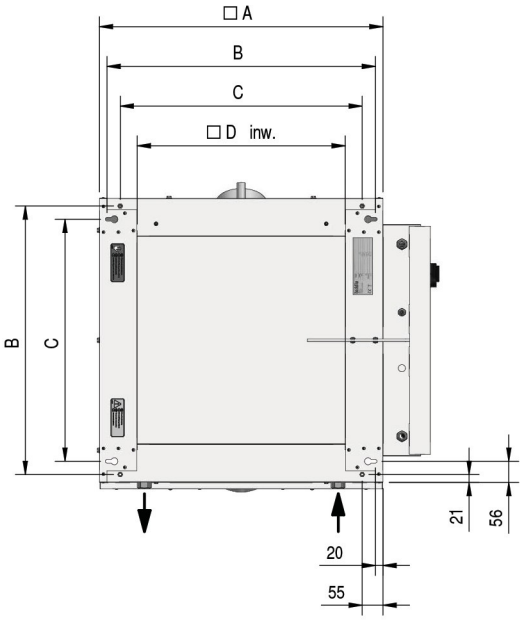
NOZ2 25-H(C)6 / NOZ2 25-(H)C6

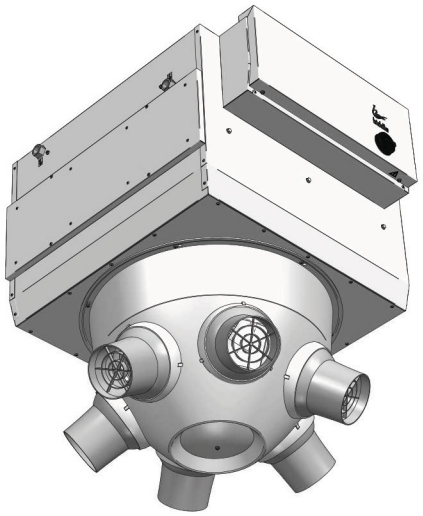
Mounting height	m	2.8 - 8.5				
Influence area	m²	100 - 400				
Electrical supply	V/ph/Hz	230/1+N/50				
Max. input current	A	1.3				
Max. input power	kW	0.290				
Max. specific fan power	W/l/s	0.32				
Weight	kg	83				
Water range (heating)	°C	50/30				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	443.0	1088.0	1785.0	2494.0	3215.0
Power consumption	kW	0.100	0.100	0.100	0.200	0.300
Sound pressure level at 5m	dB(A)	16.0	31.0	43.0	52.0	59.0
Air inlet temperature	°C			-10		
Heating capacity	kW	8.8	18.9	27.7	35.4	42.2
Discharge air temperature	°C	43.3	36.3	31.5	27.9	25.0
Water flow rate	l/h	382.0	816.0	1199.0	1529.0	1822.0
Water pressure drop	kPa	0.6	2.4	4.9	7.7	10.6
Air inlet temperature	°C			0		
Heating capacity	kW	6.9	14.7	21.5	27.4	32.6
Discharge air temperature	°C	43.5	37.5	33.4	30.4	28.1
Water flow rate	l/h	300.0	636.0	931.0	1185.0	1411.0
Water pressure drop	kPa	0.4	1.5	3.1	4.8	6.6
Air inlet temperature	°C			10		
Heating capacity	kW	5.1	10.7	15.5	19.7	23.4
Discharge air temperature	°C	43.3	38.2	35	32.7	30.9
Water flow rate	l/h	222.0	463.0	672.0	852.0	1011.0
Water pressure drop	kPa	0.2	0.9	1.7	2.6	3.6
Air inlet temperature	°C			15		
Heating capacity	kW	4.2	8.7	12.6	15.9	18.8
Discharge air temperature	°C	43	38.4	35.6	33.6	29.7
Water flow rate	l/h	183.0	377.0	544.0	687.0	813.0
Water pressure drop	kPa	0.2	0.6	1.2	1.8	2.4
Air inlet temperature	°C			18		
Heating capacity	kW	3.7	7.5	10.8	15.9	16.0
Discharge air temperature	°C	42.6	38.4	35.8	34.1	32.7
Water flow rate	l/h	160.0	325.0	466.0	587.0	693.0
Water pressure drop	kPa	0.1	0.5	0.9	1.3	1.8
Air inlet temperature	°C			20		
Heating capacity	kW	3.3	6.7	9.6	12	14.2
Discharge air temperature	°C	42.3	38.3	35.9	34.3	33.1
Water flow rate	l/h	144.0	290.0	414.0	519.0	611.0
Water pressure drop	kPa	0.1	0.4	0.7	1.1	1.4
Water range (cooling)	°C	6/12				
Inlet air relative humidity	%	48				
Air inlet temperature	°C			27		
Cooling capacity	kW	3.9	8.1	11.4	14.2	16.5
Discharge air temperature	°C	8.9	11.2	12.8	14.0	14.9
Water flow rate	l/h	562.0	1154.0	1637.0	2028.0	2360.0
Water pressure drop	kPa	1.4	5.2	9.9	14.7	19.3
Condensate water	l/h	1.9	3.5	4.5	5.1	5.3

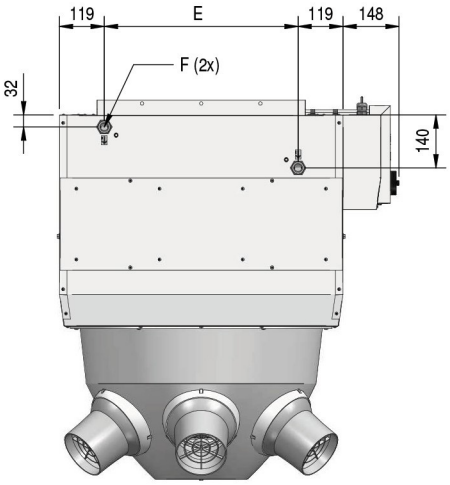
NOZ2 50-H(C)6 / NOZ2 50-(H)C6

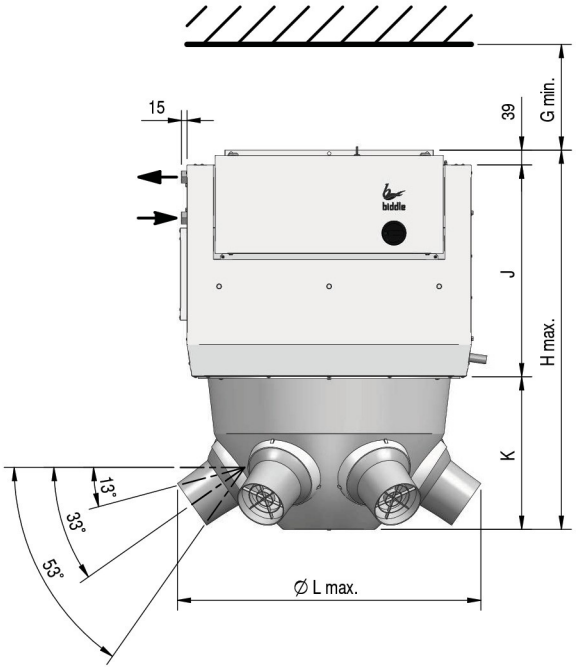
Mounting height	m	3.5 - 14.0				
Influence area	m²	200 - 800				
Electrical supply	V/ph/Hz	400/3+N/50				
Max. input current	A	2.2				
Max. input power	kW	1.340				
Max. specific fan power	W/l/s	0.60				
Weight	kg	134				
Water range (heating)	°C	50/30				
Inlet air relative humidity	%	50				
Speed		2V	4V	6V	8V	10V
Air volume	m³/h	1157.0	3039.0	4908.0	6454.0	8023.0
Power consumption	kW	0.100	0.200	0.300	0.700	1.400
Sound pressure level at 5m	dB(A)	27.0	42.0	53.0	62.0	68.0
Air inlet temperature	°C			-10		
Heating capacity	kW	21.8	47.8	67.8	81.7	94.2
Discharge air temperature	°C	40.4	31.9	26.8	23.8	21.3
Water flow rate	l/h	944.0	2064.0	2928.0	3532.0	4070.0
Water pressure drop	kPa	0.8	3.2	6.1	8.7	11.2
Air inlet temperature	°C			0		
Heating capacity	kW	17.0	36.9	52.2	62.8	72.3
Discharge air temperature	°C	40.7	33.6	29.4	26.9	24.9
Water flow rate	l/h	736.0	1595.0	2254.0	2714.0	3124.0
Water pressure drop	kPa	0.5	2.0	3.8	5.3	6.9
Air inlet temperature	°C			10		
Heating capacity	kW	12.4	26.4	37.1	44.5	51.0
Discharge air temperature	°C	40.8	34.9	31.7	29.8	28.2
Water flow rate	l/h	536.0	1142.0	1602.0	1921.0	2205.0
Water pressure drop	kPa	0.3	1.1	2.0	2.8	3.6
Air inlet temperature	°C			15		
Heating capacity	kW	10.1	21.2	29.6	35.4	40.5
Discharge air temperature	°C	40.5	35.4	32.6	31.0	29.7
Water flow rate	l/h	437.0	918.0	1278.0	1528.0	1749.0
Water pressure drop	kPa	0.2	0.7	1.3	1.9	2.4
Air inlet temperature	°C			18		
Heating capacity	kW	8.7	18.1	25.1	35.4	34.1
Discharge air temperature	°C	40.2	35.5	33.0	31.6	30.5
Water flow rate	l/h	377.0	782.0	1083.0	1290.0	1473.0
Water pressure drop	kPa	0.1	0.5	1.0	1.4	1.7
Air inlet temperature	°C			20		
Heating capacity	kW	7.8	16.0	22.0	26.1	29.8
Discharge air temperature	°C	40.0	35.6	33.3	32.0	31.0
Water flow rate	l/h	336.0	689.0	950.0	1129.0	1287.0
Water pressure drop	kPa	0.1	0.4	0.8	1.1	1.4
Water range (cooling)	°C	6/12				
Inlet air relative humidity	%	48				
Air inlet temperature	°C			27		
Cooling capacity	kW	9.4	19.3	26.4	31.4	35.5
Discharge air temperature	°C	10.1	12.8	14.3	15.2	16.0
Water flow rate	l/h	1342.0	2771.0	3783.0	4493.0	5092.0
Water pressure drop	kPa	1.7	6.3	11.1	15.2	19.2
Condensate water	l/h	4.2	7.4	8.7	9.4	9.5

NOZ2 COOLING







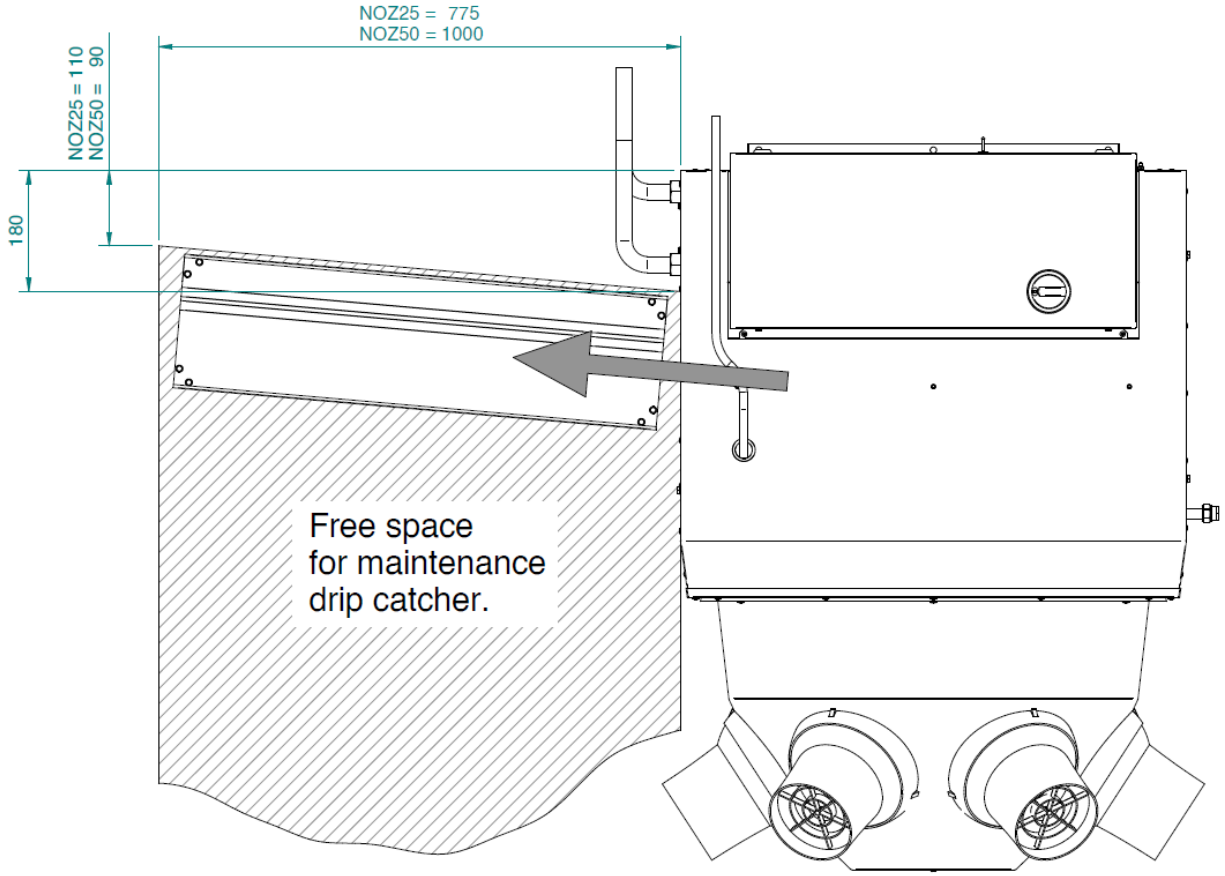


All measurements are in mm

	A	B	C	D	E	F	G	H	J	K	L
NOZ2 25-C6/HC6	750.0	710.0	640.0	550.0	512.0	G3/4"	200.0	1003.0	560.0	404.0	803.0
NOZ2 50-C6/HC6	975.0	935.0	865.0	775.0	737.0	G1"	300.0	1129.0	585.0	505.0	1016.0

MAINTENANCE AREA

When installing the NOZ25 and NOZ50, please make sure that there is a appropriate sized maintenance area to allow clearance for the removal of the drip catcher.



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